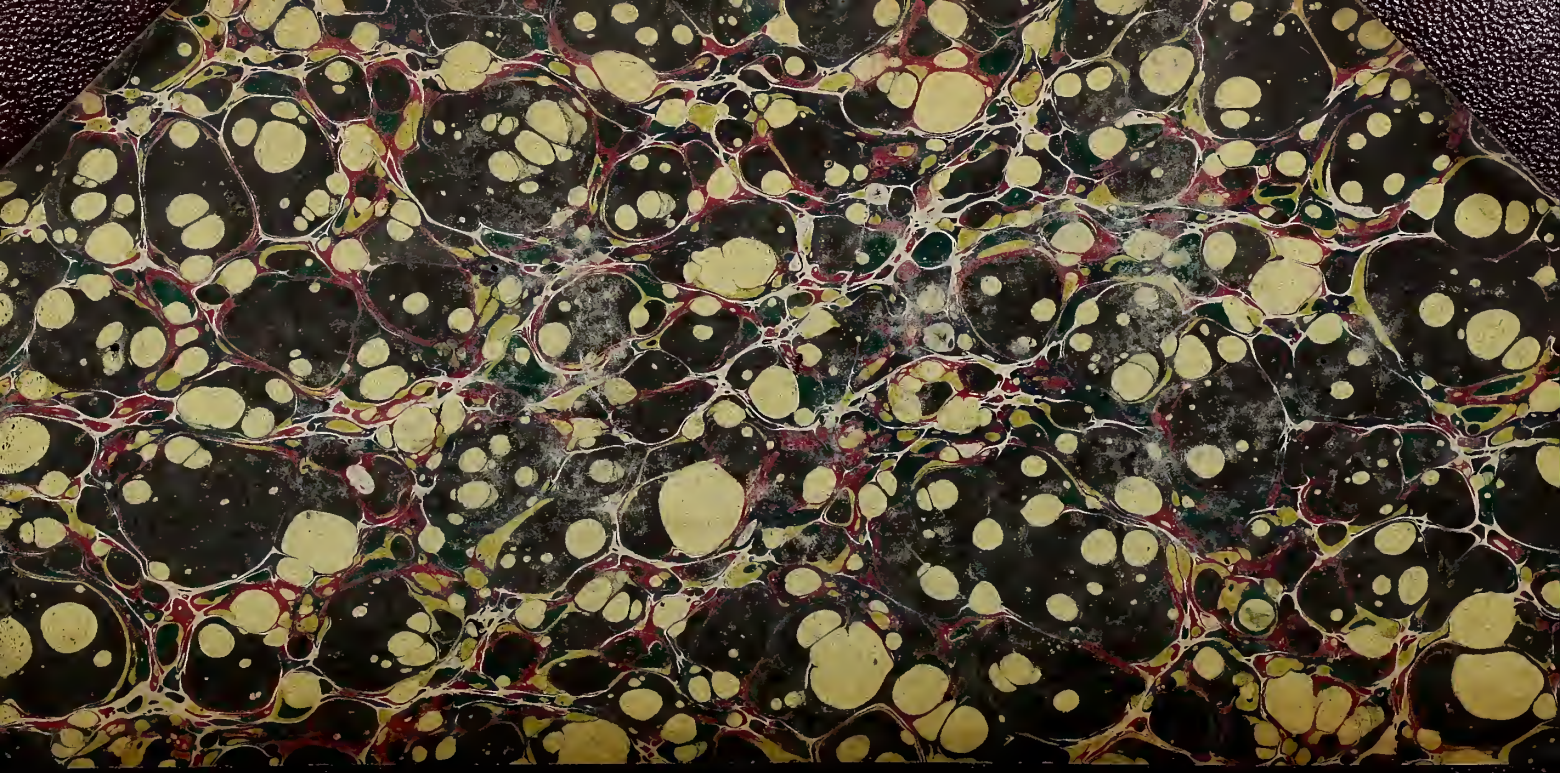


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Scheme of a Table for all Time. By Capt. R. SHORTREDE, *Assistant Surveyor General.*

I enclose for publication, if you approve, in your Journal, a Perpetual Time Table, which I constructed sometime ago; by the help of which may be found in less than half a minute, the week-day of any date for thousands of years, past or future.

Besides the directions given on the back, little more seems necessary to render intelligible the method of using it. The Table consists of three concentric circular cards, each having seven divisions corresponding to the days of the week. On the outer are written, from left to right, on three circles, the odd years of a century. On the second card are written the full centuries, of New Style on the outer, and of Old Style on the middle circle; the order of these being from right to left. Within are the days of the week from left to right. The third card has the days of the month from left to right, and within these, the twelve months in a peculiar order, each following month being as many divisions to the left as the days in the preceding month exceed 28.

In using the Table, the first thing is to adjust the second card with its proper century to the zero on the outer card; thus for 1841 New Style, the full century being 18, the division containing the N. S. 18 on the second card, is to be brought opposite that division on the outer card which contains the double zero (00). This being done, the middle card will require no change till the year 1900, when the centurial division containing 19 (N. S.) is to be brought opposite the (00) division.

The odd year 41 of the century being found on the outer card, the division containing it is that by which the months are to be adjusted throughout the year: the division containing the given month being brought opposite that of the 41, the days of the month will be opposite their proper week-days. For example, to find the week-days of the 8th and 18th of June—*June* being brought opposite the 41, opposite the 8th will stand Tuesday, and opposite the 18th stands Friday. In like manner *December* being brought opposite the 41, opposite the 23rd stands Thursday. For the 18th June 1815, the centurial adjustment remaining unchanged, June being brought opposite the year 15 on the outer card, the 18th is seen opposite Sunday. The battle of Preston happened on the 21st September 1745, Old Style, required the week-day. The Old Style century 17th being brought to the 00, and September to the year 45, opposite the 21st stands Saturday.

The battle of Culloden was fought on the 16th April 1746, O. S. required the week-day. The centurial adjustment remaining as before, April being brought opposite the year 46, opposite the 16th stands Wednesday.

Thus the Table is used with equal facility for N. S. or O. S. dates.

The second card having the full centuries of both styles, (which may be continued at pleasure), shews at once those which have the same week-days. The O. S. centuries are continued by successive additions of 7, and those of N. S. by additions of 4. The reason of which is, that a Julian or O. S. century having 25 leap years, consists of 5200 weeks and 125 days. Now 125 days are short of 18 weeks by one day, hence each Julian century commences on a week-day earlier by one than did the preceding century; so that the same week-days must recur after a period of seven centuries. But in the New Style there are three Gregorian centuries and one Julian; and as a Gregorian century has only 24 leap years, it consists of 5200 weeks and 124 days, being two days short of 18 weeks. The loss of two days on each of the three Gregorian, and one day on the Julian century, amounts to a week every 400 years, and hence the recurrence of the same week-days in the order above mentioned.

When Pope Gregory XIII. in 1582 introduced the New Style, the object was to adjust the festivals in the Calendar to the same time of the year as they held at the time of the Council of Nice in 325; ten

The outer Card has on three circles the odd years of a century in their order.
The second Card has on the outer and middle circles the four centuries of New and old Stile; and within these are the days of the Weeks.
The inner Card has the months and days of the month.

For dates before the Christian Era. Subtract the given date diminished by one from any convenient multiple of 400 and use the remainder as a date in A.D.

Perpetual Time Table
designed & made by
Robert Shortrede
Capt.n 1st Ass.t G.T.S.

Adjust the Circular disk so that the Century in use may stand opposite to the 00 division on the outer Circle.

Bring the Month and Day of the week to the Index.

Then bring the Year (or leap Year) to the Index.

Then opposite the Year will be found the Day of the week.

days were added to the reckoning by counting the 14th instead of the 4th of October, as it was estimated that so much had been lost during the interval. It would, however, have been correct had only 9 days been added, because from 325 to 1582 there are 1257 years, during which 3 days having been lost every 4 centuries, it is clear that 9 days must have been lost in 1200 years, and the reckoning of the odd 57 years being the same according to both styles.

By adding ten days to the Calendar, the festivals have in fact been adjusted to what they were in the century before the Council of Nice.

This mistake may be shewn by the Table, where it is seen that the same week-day is common to the full century 30 according to both styles, and as the coincidences occur at intervals of 28 centuries, the same week-day is common to both styles in the full century 2, whereas the week-days of the full century 3 differ in Old and New Style. The agreement would be perfect in the year 225, but wrong by a day in the year 325.

This mistake in adjusting the New and Old Styles, is similar to that committed in settling the Epoch of the Christian Era, the true time, as is now generally admitted, being 4 years before the common reckoning.*

As it is often convenient to reckon dates before the Christian Era in Julian years, I have given a rule for finding the week-days of such dates with facility, by observing that they recur in the same order every 700 years. The rule is this: subtract the given year diminished by one from any convenient multiple of 700, and use the remainder as if it were a common Old Style date.

As the Gregorian adjustment of the Calendar causes an error in excess of about one day in every 40 centuries, this may be allowed for by adjusting the full century-division not to the 00, but one division to the right of it for every 40 centuries. This adjustment renders the Calendar perpetual, so far as depends upon our present knowledge of the length of the year; but the adoption of this, or the correction of any error which may be found to be involved in it, will remain for future generations.

22*nd March*, 1841.

P.S.—The proper method of manipulating the Perpetual Time Tables, is the following:—In adjusting the full century to the zero, put the two

* See Barlow's Mathematical Dictionary, art. Epoch; or the Essay in Fergusson's Astronomy.

first fingers of each hand to the back of the card, (the zero being toward the front,) then with the thumbs move about the second card to the required position.

In making the monthly adjustment, hold the outer card between the fore-finger and thumb, the division containing the odd year of the century being to the front, then putting the thumb of the other hand over the centre on the face and the forefinger at the back, turn about the central card till the proper month division comes opposite that of the odd year.

Notes on Capt. SHORTREDE'S *Scheme.* *By* W. MASTERS, ESQ.

1. Let the 1st of January begin with any day of the week A, and write down in succession all the months, with their days under corresponding days of the week thus:—

	A.	B.	C.	D.	E.	F.	G.
January	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
February				1	2	3	4
	5	&c.	&c.				

2. The following peculiarities will present themselves:—

First. The arrangement of dates and days of the week, correspond in these months: January and October; February, March, and November; April and July; September and December; the other three months May, June, and August, are isolated months, having no correspondence of arrangement with any other.

Second. In leap years, the dates from 1st March to 31st December inclusive, will arrive a day later in the week. As the additional day of leap year comes at the end of February, it does not affect the correspondence of dates and days for January and February.

Third. The vertical dates of January and October fall on the same days.

Fourth. The vertical columns of dates are found in the same order and succession in all the months, but under different days of the week: the agreements noticed in Obs. first excepted.

Fifth. The dates of the first column of January, and similarly the other columns, fall in *May*, one day of the week *later*; in *April* and *July* one day *earlier* than they do in January.

Sixth. The dates of the 1st column of January (and similarly all the others) will in *August* fall *later* in the week by one day than they do in May; and in *September* and *December* one day *earlier* than they do in April and July.

Seventh. The same dates in *June* fall *earlier* in the week by one day than they do in September and December; and in *February*, *March* and *November* one day *earlier* than in June, or one day later than in August.

Eighth. If the 1st of January fall on any day of the week A, the following dates will fall on the same day:—

1.	8.	15.	22.	29th	of January and October.
5.	12.	19.	26.	—	of February, March and November.
2.	9.	16.	23.	30th	of April and July.
7.	14.	21.	28.	—	of May.
4.	11.	18.	25.	—	of June.
6.	13.	20.	27.	—	of August.
3.	10.	17.	24.	31st	of September and December.

3. The dates and months, exhibited in Observation 8th of Article 2, are grouped together in Capt. Shortrede's scheme on the inner or smallest card, and arranged in a peculiar order, as the author expresses himself, having reference to the eight Observations of Article 2.

4. Some years have 365 days and some 366: three years in succession have 365 days each, and the fourth year (with exceptions to be noticed) has 366 days. The year that has 365 days has 52 weeks and one day over; therefore, whatever day of the week begins such a year, also ends it. During three such years three days of the week in succession begin and end those years; the 4th day begins the 4th year; but as this year has 366 days, which are equal to 52 weeks and 2 days, the day after the 4th day, that is, the 5th day, will end the year. Calling these four years a series, we may say that whatever day of the week begins the series, the 5th day in succession ends it. The 6th day in succession begins and ends the 1st year of the next series; the 7th day begins

and ends the 2d year of that series; the 8th day (i. e. the 1st week-day with which we commenced) begins and ends the 3d year; and the 9th (or 2d day) begins the 4th year; but does not end it, because it has 366 days; the 10th (or 3d day of the week) ends it: and so on.

5. Let the days of the week be called *a*, *b*, *c*, *d*, *e*, *f*, *g*, without, at present, particularising which day of the week is called *a*, or *b*, or *c*, &c. The following Table is constructed on the principle explained in 4. It consists of series of 4 years each which are marked 1st, 2nd, 3rd and 4th; the days of the week that commence these years are placed vertically underneath; the fourth year has always two letters; the first indicating the day of the week on which that year begins, the second letter, the day on which it ends. The arrangement commences with the 1st day of the 1st year of any century; with the year 1, or 101, or 1601, or 1801; and the 1st of January is supposed to fall on a day of the week called *a*.

Series.	1st year.	2nd year.	3rd year.	4th year.	
1	a	b	c	d and e	
2	f	g	a	b and c	
3	d	e	f	g and a	
4	b	c	d	e and f	(Table 1.)
5	g	a	b	c and d	
6	e	f	g	a and b	
7	c	d	e	f and g	
8	a	b	c	d and e	

6. After 7 series of 4 years each=28 years, the same succession commences.

7. From Table (1) may be formed another (which will be given hereafter) exhibiting all the years of a century that begin with the same day; but it will be more convenient to shew first, how the centuries commence; and of centuries, the centuries of Old Style first; reminding readers that, according to Old Style, every 4th year, without exception, is a leap year, and consists of 366 days.

8. By attending to Table (1) it will be seen, that the series consist of lines of years and days of the week in succession; each series has 4 years and 5 days of the week. If we fancy weeks lengthened out into one uninterrupted line of days, the first day *a* of the second week will be called the 8th day; 4 weeks will be called 28 days; and Table

1, or rather the succession which it shews, may be represented by the following progression :—

Series, ...	1	2	3	4	5... 25	...50, &c.
Years ending these series, .	4	8	12	16	20...100	...
Days beginning these years,	4	9	14	19	24...	

The common difference of the years is 4, of the days 5 : the 25th term will therefore be year 100 and day 124: 124 days equal 17 weeks and 5 days; therefore the 100dth year will begin with the day *e.*

9. According to Old Style this progression may be extended to series 50. The fiftieth term of the progression will be, year 200 and day 249; 249 days equal 35 weeks and 4 days; therefore the 200dth year begins with the 4th day *d.* In the same manner it may be found that the year 300 begins with the third day *c;* the 400dth with the 2d day *b;* the 500dth on the first day *a;* the 600dth on the 7th day *g;* and the 700dth on the 6th day *f.*

10. Hence every 100dth year commences on a week-day, one day earlier than the preceding 100dth year: consequently if the year 1 of any century begins on any week-day *a,* the year 1 of the next century will begin on the week-day *g,*—*i. e.* a day earlier.

11. In Old Style all the days of the week in their turn commence a century and a 100dth year.

12. The following Tables are formed according to Articles 8—10. The Table marked (2) shews how each hundredth year begins. Table (3) shews how each century or first year of each 100 begins :—

Days of the week	e	d	c	b	a	g	f	
begin Hundredth years, *i. e.* years 100, 200, 300, &c.	1	2	3	4	5	6	7	(Table 2.)
	8	9	10	11	12	13	14	
	15	16	17	18	19	20	21	
	22	23	24	25	26	27	28	
	29	30	31	32	33	34	35	
	36	37	38	39	40	41	42	

Days of the week	a	g	f	e	d	c	b	
begin centuries or years 1 of 100; 1 of 200, &c.	1	2	3	4	5	6	7	(Table 3.)
	8	9	10	11	12	13	14	
	15	16	17	18	19	20	21	
	22	23	24	25	26	27	28	

13. Now follows the Table (marked 4), exhibiting all the current years of a century that begin with the same day of the week. The primary arrangement is for the current years of the 1st century beginning with year 1. Underneath this, the letters denoting the days of the week are so arranged as to shew how the superincumbent columns of years begin in the other centuries in succession; an arrangement which will be quite intelligible by attending to Art. 10.

a	b	c	d	e	f	g	
1	2	3	4	—	5	6	
7	8	—	9	10	11	12	
—	13	14	15	16	—	17	
18	19	20	—	21	22	23	
24	—	25	26	27	28	—	
29	30	31	32	—	33	34	
35	36	—	37	38	39	40	
—	41	42	43	44	—	45	(Table 4)
46	47	48	—	49	50	51	
52	—	53	54	55	56	—	
57	58	59	60	—	61	62	
63	64	—	65	66	67	68	
—	69	70	71	72	—	73	
74	75	76	—	77	78	79	
80	—	81	82	83	84	—	
85	86	87	88	—	89	90	
91	92	—	93	94	95	96	
—	97	98	99	100	—	101	

g	a	b	c	d	e	f	for odd years of 2d century.
f	g	a	b	c	d	e	——————— 3d ——
e	f	g	a	b	c	d	——————— 4th ——
d	e	f	g	a	b	c	——————— 5th ——
c	d	e	f	g	a	b	——————— 6th ——
b	c	d	e	f	g	a	——————— 7th ——

14. It will be seen that the above columns of years begin with fixed days for fixed centuries. If the century begins with any day, the first column of years will begin with that day, the other columns with the next day in succession. Table (3) shews how the centuries commence; and when this is known, Table (4) will readily shew how the years commence.

15. These columns of years are arranged in Capt. Shortrede's scheme in a circular order, and occupy the seven divisions of the outer card, in

the same succession in which they stand above, with a few exceptions.

16. The exceptions are the leap years, which are advanced one division to the right of their proper division, for the reason given in Observation 2 of Article 2: this occasions error in week-days corresponding to January and February, but the scheme says, "in leap years for January and February use the half blank space to the left, then opposite the given date is the day of the week." This is obscure; and, if I understand the author aright, incorrect. The meaning of the author appears to be, "use the division containing May as if January had been there, and fancy February to be where June is." This will lead to error. The direction should be—for January and February in leap years take that day which is one division to the left of the day opposite to the date. The week-day for January and February is one day earlier than the day opposite to the date.

17. Although the leap years are thus advanced, the author of the scheme appears to have left half the digits of the numbers expressing those years in their proper divisions; for there are four 4s, 2s, and 6s and five 8s in different divisions. This is objectionable, because these numbers may bewilder those who are reckoning for the current years 2, 4, 6, 8; and, if the scheme be printed for general use, should be omitted.

18. The middle card of the scheme contains not the centuries of (3) but the full centuries or hundreds of (2) for the convenience of reading. In Table (3) the days of the week for the current years of centuries are shewn in 7 lines: but in the scheme the full centuries and their fixed days revolve in a circle; and the days are readily made to assume their positions relative to the current years.

19. If the scheme had a century division, then by adjusting the century division, bearing the name of the week-day commencing the centuries which it contains, with the year division containing the years 1, 7, 18, 29, all those years would be shewn to commence with that day; and the years in the other divisions, with the days standing below them, for those centuries.

20. But the hundred years or full centuries are more convenient for reading, as years 101, 1801, 1841, &c.; then the 100dth year must be so adjusted to a year division that the day on which the following cen-

tury commences, shall fall exactly under the division containing years 1, 7, 18, 29, &c.

21. The scheme has been regulated according to the hundreds or full centuries; and therefore, when it is to be used, the full-century-division must be adjusted with a current-year-division in accordance with Art. 20.

22. By comparing Tables (2) and (3) it will be observed, that each hundredth year commences two days earlier than the succeeding century. The 2 hundredth year of (2) commences with d; the 3d century of (3) begins with f; the 3 hundredth of (2) begins with c; the 4th century begins with e; in each case the hundredth year begins 2 days earlier; therefore, in using the scheme the full-century-division is to be adjusted with the current-year-division 2 remove to the left from the division containing years 1, 7, 18, 29, &c; that is, with the division containing the years 5, 11, 22, 33, &c.

23. But, because the hundredths or full centuries of Old Style are all leap years, they are thrown one division to the right according to Art. 16, and are in consequence to be adjusted with the year-division containing the years 6, 17, 23, 34, &c. The hundreds or "full centuries," do not commence with the day of the week over which they stand, but with the day to the left; consequently, although the full-century-division is shifted, the week-day commencing the next century or the year 1, falls in the right place under the division containing year 1.

24. The division containing the years 6, 17, 23, 34, &c., have two cyphers 0 0 for reference. If the scheme be published for general use, it would be an improvement to substitute a black dot, such as is used in the Nautical Almanac to represent the New Moon.

25. Let us now turn our attention to the New Style. In the year 1752, it was "enacted by 24 Geo. II. c. 23, that instead of cancelling *ten* days as Gregory XIII. had done, *eleven* days should be left out of the month of September; accordingly, on the second day of that month, the Old Style ceased, and the next day, instead of being the third, was called the fourteenth, and by the same act, the beginning of the year was changed from the 25th of March to the 1st of January."—*Ency. Met. Mis. and Lex. vol.* iii. *art. Calendar, p.* 155.

26. It was likewise enacted, that the Gregorian correction should be applied to certain years specified. According to the Gregorian rule,

every year divisible by 4 receives a day, or has 366 days. But every year divisible by 100 and not divisible by 400 has 365 days. The year that is divisible by 100 is also divisible by 4, since 100 is a multiple of 4: this part of the rule is therefore an exception to the first part, since there are years divisible by 4, which instead of having 366 days, have only 365. These years may be considered as losing a day to which they are entitled by the first part of the rule. The following are the years that lose a day. (It is to be remembered that those years which are divisible by 400 have 366 days: this is a part of the Gregorian rule.)

1700, 1800, 1900 —— 2100, 2200, 2300,
2500, 2600, 2700 —— 2900, 3000, 3100, &c.

27. Consequently, the correspondence of dates and days in Table (1) will not answer continuously for the New Style: it will be interrupted in the New Style at the 100dth year, corresponding with the 4th year of series 4 and marked (a) in the Table. The 100dth year begins and ends with e, because it is not a leap year; the next century, that is, the year 1 of the next century consequently begins with f; and the succession given in (1) will be again interrupted at the next hundredth in the same place at (a), which place will now be occupied with *c* and *d*, because the first year begins with f and not with a. Although Table (1) is referred to in this place, it is not to be understood that the letters a, b and c, have the same signification in New Style that they have in Old Style: *a* in Old Style may be one day of the week, and in New Style another. But proceeding as above, the days beginning the hundreds of New Style may be found out, and the following Table formed, marked (5): in which the letters are slightly altered in character for the sake of distinction, but retain the same relation of time or succession.

Week Days.	*e.*	*c.*	*a.*	*f.*	
Hundreds of New Style.	100	200	300	400	
	17	18	19	20	
	21	22	23	24	(Table 5)
	25	26	27	28	
	29	30	31	32	
	33	34	35	36	

28. Observe here that only four days of the week begin the hundreds of New Style; and three days of the week never have that privilege, not for 40 centuries. The years in column *f*, are all leap years in New Style. This accounts for that arrangement of Capt. Shortrede's scheme, which occupies only 4 of the 7 divisions with N. S. centuries.

29. About the time of the 40th century, the Vernal Equinox will be 1 day nearly in advance of the 20th of March; in which case if the British Calendar and British Parliament be in existence, it may be found necessary to throw out a day from the Calendar. If the measure be adopted in the year 4000 A. D. then this year will not be a leap year, and as 4000 is a multiple of 400, and consequently falls in column *f*, the year 4000 will begin and end with *f* Art. 4; the week-days *a* and *c* will go out and *b* and *g* will occupy their place for the next 40 centuries, during which period the hundreds will begin thus:—

d	b	g	e	
100	200	300	400	&c.

Centuries and years and hundredth years will begin a day earlier. By adjusting the "full-century-division one place to the right of 0 0 for every 40 centuries," according to the directions given in the scheme, a correction will be effected for the *current* years; but as the centuries and week-days are in fixed position on the same card, the prescribed adjustment is not effective for the *hundredth years* or *full centuries* on the middle card.

30. It is now time to shew the relation between the week-days of Old and New Style. On the 3d of September 1752, New Style was introduced in England, when the 3rd of September was called the 14th (25). Consequently the 14th of September N. S. fell on a certain day in the first week, but the 14th September O. S. fell 11 days after in the second week: therefore the New Style *dates* may be said to occur 11 *week-days*, that is, 1 week and 4 days, that is 4 *week-days* earlier than O. S. *dates*.

31. If it should ever happen that a day is rejected from any year by New Style and not by Old Style, then that year in New Style will end 1 day sooner than in Old Style; and consequently the next year of New Style will be another day earlier than Old Style; that is 12 days of date or 5 *week-days*; and as often as this happens, New Style will be an additional day earlier than Old Style.

32. This happens in those years of N. S. which are divisible by 100, but not by 400; that is in the years contained in the columns *e*, *c*, *a*, of Table (5). The following *centuries* begin as many days earlier in New Style than they do in Old Style, as are indicated by the numbers below them.

It is necessary to keep in mind that, as the intercalary day is thrown out in these years, at the end of February, this suppression of a day does not affect the calculations for the dates and days preceding the 28th of February: it makes those years *end* sooner, but not *begin* sooner or later in the week.*

Centuries, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30.
Days, ... 11, 12, 13, 13, 14, 15, 16, 16, 17, 18, 19, 19, 20, 21, &c.

Consequently the years from 1801 to 1900 inclusive begin 12 days earlier than they do in Old Style.

The *hundreds* of New Style advance as below:—

Hundredth Years, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29.
Days, ... 10, 11, 12, 13, 13, 14, 15, 16, 16, 17, 18, 19, 19.
Week Days, ... 3, 4, 5, 6, 6, 0, 1, 2, 2, 3, 4, 5, 5,

33. If New Style be carried back in theory, the preceding arrangement will shew that New and Old Style agree in the following hundredth years or full centuries.

Years A. D. 300, 1200, 1300, 2200, 3100, 4000, 4100.†

34. The year 1841 N. S. began on Friday, therefore the year 1841 O. S. began 12 days or 5 week-days later; viz. on Wednesday. The year 1800 N. S. began on Wednesday; the year 1800 O. S. began 4 days later on Sunday. But 1800 O. S. stands in column b of Table (2), consequently b is Sunday, and 1800 N. S. stands in column *c*. of Table (5) therefore *c* is Wednesday. Therefore the letters indicating the days of the week have the significations attached below:—

O. S. Table (2)	N. S. Table (5)
e Wednesday.	e Friday.
d Tuesday.	c Wednesday.
c Monday.	a Monday.
b Sunday.	f Saturday.
a Saturday,	
g Friday.	
f Thursday.	

* The note at the foot of p. 35 Cab. Cyc. Chronology of History, "The Style" is partly erroneous.

† The agreement of 1200 commences on the 28th N. S. 29th O. S. of February of the year 1100, and terminates on the 28th N. S., 29th O. S. of February of the year 1300.

35. In Captain Shortrede's scheme, the days will be found one division to the left of the hundreds of O. S. which they begin, according to Art. 23 and 16. The N. S. hundreds will be found over their proper days, except the leap years of column *f*, which stand over Sunday instead of Saturday, Art. 23, 16.

36. It is essential to observe, that the scheme supposes the years both of Old and New Style to begin on the 1st of January.

I tested it with about a hundred dates taken from the "Cabinet Cyc." "Chronology of History;" "Hume's History of England;" "Bacon's Letters," and some anticipated dates carried forward by myself, and found the scheme to agree with all, except two. These were two from Bacon, as follows:—

1617. February 6th, Friday, Bacon, vol. 3d (Letters) page 361.
1620. March 8th, Thursday, do. do. —— 599.

It subsequently occurred to me, that before the year 1752, the Ecclesiastical year began on the 25th of March, and consequently these years 1617 and 1620 should be read 1617-18 and 1620-21; because 6th February and 8th March fall near the end of years 17 and 20 of the old reckoning, and in the early parts of the years 18 and 21 of the new reckoning. The scheme (O. S.) agrees with this reading.

37. The dates from 3d to 13th September inclusive 1752, never existed in the British Calendar, Art. 25th; September the 2d was the day immediately preceding the 14th. By reckoning backwards from 1814 I find that the 14th fell on Thursday, consequently the 2d fell on Wednesday. Old Style in the scheme points to Wednesday, but Sept. 2d, 1752, N. S. points to Saturday. This disagreement was expected. Old Style is continuous, New Style carried back, is at fault between the 2d and 14th September 1752. A paper in the Rambler, is dated Saturday, March 14, 1752; therefore the 2d of September following fell on Wednesday. A paper in the Adventurer is dated Tuesday, November 7, 1752; therefore the 14th of September preceding was Thursday. The following dates agree with Old Style of the scheme, but not with New Style.

Tatler,	Saturday, March	11,	1709-10
,,	Tuesday, February	28,	1709-10
,,	Thursday, March	2,	1709-10
Guardian,	Tuesday, March	24,	1712-13

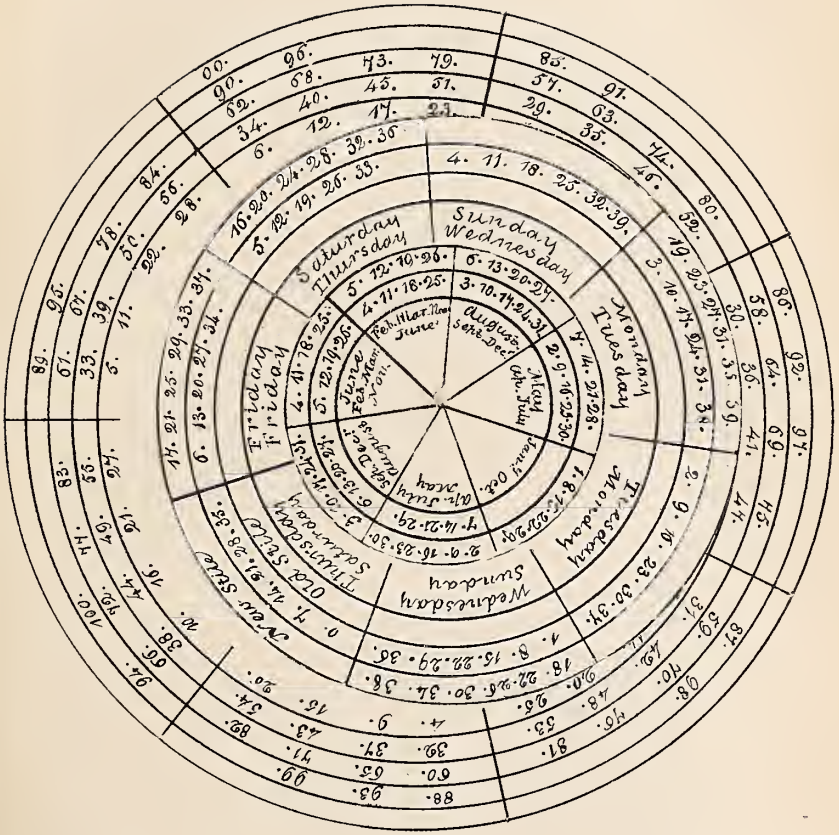


Table to accompany Mr. Master's Notes

Guardian,	Wednesday,	25,	1713
„	Friday, July	13,	1713
Spectator,	Monday, October	20,	1712

Where the two years are given, the ecclesiastical and the historical, the scheme agrees with the second or historical.

The inference is that the scheme, as matter of *fact*, is unservicable for dates in New Style earlier than the 14th September 1752; and similarly for Old Style as far in the "dark backward and abysm of time" as the first fault occurs; the *year of confusion* for instance.

38. In the author's directions for dates before the Christian æra, it would, perhaps, be better to substitute the word *year* for *date* in the words "subtract the given *date*."

39. After the foregoing observations, the reason of the prescribed manipulation of the scheme will be understood.

By adjusting the century division to the division 0 0, the days commencing the current years fall under the right divisions by Articles 22; 23; 13; 14.

The day on which a year begins is the day on which these dates of January fall;—1 (of course) and 8, 15, 22, 29 by Obs. 8 of Art. 2.

The day on which these dates fall is the day on which certain dates of other months fall; vide Observations 8. of Art 2; and which are arranged on the smallest card of the scheme.

Therefore by bringing a month to the division of a current year, the week-day above shews on what day the subjacent dates of that month fall (with slight variation for leap years.)

The other dates of that month lie under their proper week-days by Art. 1.

There are no directions given how the scheme is to be used for years of the first century; viz. the years 1, 25, 60, 99, and the like, which have no hundred before them. It is therefore necessary to insert a cypher or zero among the hundreds of 7, 14, 21 of Old Style, thus 0, 7, 14, 21, 28, 35.

40. In the course of this investigation, my attention fell upon the Tables that relate to the Dominical Letters. The numbers are the same both in the Tables and in the scheme. It may therefore be anticipated, that the scheme will soon supplant the Tables.

41. The scheme given here will do for years before Christ without the trouble of calculation. It is however more curious than useful.

In the smallest card, use the black characters for years A. D. and the red characters for years B. C.

The same in the middle card. The centuries of Old Style will do for centuries before Christ; reading thus, 0 hundred, 7 hundred, 14 hundred, &c. B. C.

In the year-divisions, leap years A. D. are marked with black; leap years B. C. are marked with red.

In the use of the scheme, for years A. D. adjust the centuries with the year-division having the black characters 0 0, and read as directed in Capt. S.'s scheme, with this exception; in leap years for dates from the 1st of March to the 31st December inclusive, take the week-day that is in the next division to the right of the week-day opposite to the given date.

For years B. C. adjust the centuries with the year-division, containing the two red characters 0 0; and read as directed for A. D. years using the red characters. In leap years for dates between the 1st of March and 31st of December inclusive, take the week-day that is in the next division to the left of the week-day opposite to the given date.

La Martiniere, 5th May, 1841. W. Masters.

Remarks by Capt. Shortrede.

§ 16. The only HALF blank spaces in the whole Table occur in the outer card, and are those of the odd centurial years divisible by 4, *i. e.* leap years. These are denoted by writing only the final digit; the space for the other digit (easily supplied from those before or after) being blank. These spaces are therefore *half* blank.

The way in which Mr. Masters interprets the direction, certainly leads to error; but how such an interpretation can fairly be drawn from the wording, does not readily appear. I am directing how to use the Table for any current year of a century, and as an exception to the general rule occurs in January and February of leap years, I provide for it by the direction within the parenthesis, which of course I mean to be taken as referring to the subject then treated of; viz. the particu-

lar division of the outer card opposite which the given month is to be brought. The meaning is this—instead of the current year division on the outer card marked like the others with two digits, use the division on the left, which being for distinction marked with only the final digit is half blank—opposite this half blank space on the outer card in leap years adjust the January and February months—but never fancy the months to be in any other division than that in which they are written on the inner card.—R. S.

§ 17. No confusion can arise if it be considered that a single digit *never* represents the current year of a century. For example, the 4th year of the full century 18 is 1804, represented by 04, and not by 4 merely. The whole date being expressed by the current year preceded by its full century, if the odd year be written 4 this preceded by 18 becomes 184, being the year 84 of the full century 1. Moreover the outer card has the odd years of a century *in their order*, *i. e.* increasing uniformly from left to right, and not at random.—R. S.

§ 21. The only adjustment required is to bring the division of the middle card containing the full century opposite the division containing 00 on the outer card, and when this is done, no farther adjustment of the middle and outer cards to each other can have place throughout *that* century.—R. S.

§ 23. These being leap years require according to the direction for January and February (and therefore on January 1st) to have the month division brought opposite the single 0 to the left of the 00, being in that case *the half blank to the left.*—R. S.

§ 24. The black dot would require a special explanation, for which there is not room on the back of the card, without confusion or omission of something more important. A total blank would be preferable to a black dot, but to this there would be much the same objection.

Either of these would derange the principle on which the outer and middle cards are adapted to each other. This principle is, that when the full century for the time being is opposite the 00 or point of adjustment, every odd year on the outer card is to be read as if it had its proper full century digits before it. The 00 is to be read in the same way as any other year of the century.

The Table might have been made adjustable by any other zero as well as by 00; and by any other date as by the 1st of January, but

these on the whole are considered to be the most convenient. Had the Table been adjusted by 1st March, we should have got rid of all trouble about the 29th of February in leap year, but should have incurred the inconvenience with our present Calendar of reckoning two months of each year as part of the year preceding.—R. S.

§ 29. Quite true. The adjustment referred to is that by which the full centuries are brought opposite the proper division on the outer card. After 4000 and till 8000, the full century-division is to be adjusted by the division on the outer card containing 01 instead of that containing 00 as formerly. The current year is then to be read on the outer card as usual. The full century being opposite the 01 division, that of the 00 will be one place to the left. Hence the full century will commence on a week-day earlier by one than that over the full century on the middle card. This arrangement was preferred to that of shifting the places of the full centuries on the middle card, as hereby the series of full centuries may be continued indefinitely backwards or forwards by uniform common differences.—R. S.

§ 37. This inference is unwarranted. New Style commenced in 1582, and from that time was used generally in Catholic countries. It was adopted by the Protestants of Germany in 1700, and in England 1752. For dates previous to these epochs in the respective countries, this Table or any other as a matter of *fact* must be unserviceable for New Style dates; because such dates did not exist. It is serviceable throughout the whole range of Old Style dates, which still are used in Russia and by the Greek Christians. *The year of confusion* having occurred before the Christian Era, is *out of date*. All such cases are provided for generally by the directions for dates before the Christian Era, and for all such, Old Style reckoning, even when fictitious, is perhaps the most convenient. In such cases, however, there is but little occasion to know week-days as a matter of historical reference.—R. S.

§ 39. No particular directions are needed. The full century in that case is 0, and at first this digit was inserted in the place now occupied by the letters O. S. The difficulty is sufficiently provided for by the remark, that the series of full-centuries *may be continued indefinitely*. —R. S.

Notes on the Gems found at Beghram. *By* J. S. Chapman, Esq. *Assistant Surgeon, 16th Lancers.*

My dear Sir,—Having observed in the last number of the Journal of the Asiatic Society, the great interest you have taken in the Gems found in various parts of Afghanistan, and as you there make an earnest entreaty to be furnished with casts or impressions of all Gems, and particularly of those with inscriptions, I have the pleasure to send you a series of these singular relics discovered at Beghram, the locality of which spot has been so fully and ably described by Mr. Masson. For this purpose, my friend Colonel Cureton most kindly gave me free access to his cabinet, and all the Gems which I have selected for your notice are his, with the exception of the four last. Some of the specimens from Colonel Cureton's collection are of a superior order, equalling many of the antiquities of this nature found in Greece and Italy. One gem cannot fail in attracting much notice; viz. that of Abraham offering up his son Isaac; and there are others which will afford scope for speculation. Any other relics of this nature I may chance to meet with, I will send casts of the same to you.

I am, dear Sir,

Yours faithfully,

Meerut, August 22, 1840. J. S. Chapman.

No. 1. Garnets. A figure apparently intended for Apollo, as neatly and spiritedly executed as many of the ancient Gems of Greece and Italy.

No. 2. Cornelian. An historical gem of singular interest and value; the subject, Abraham offering up his son Isaac, is too clear to be mistaken, Genesis, chapter xxii—"And Abraham stretched forth his hand, and took the knife to slay his son. And Abraham lifted up his eyes, and behold behind him a ram caught in a thicket by his horns: and Abraham went and took the ram, and offered him up for a burnt-offering, instead of his son." The cast does not represent the knife and the figure on the altar so well as I could wish.

No. 3. Cornelian. A figure of Ceres, the style of execution almost equals the Apollo (No. 1.)

No. 4. White Cornelian. A well-cut head, Buddhist or Sassanian?

No. 5. Garnets. A head ornamented with earrings, and an inscription

round it. I imagine it to be Sassanian, for the peculiar character seems to resemble that found on some of the Sassanian coins, of which I send impressions; it is evidently not Bactro-Pehlevi.

No. 6. Cornelian. A head coarsely engraved.

No. 7. Cornelian. A head apparently Sassanian, from the peculiar stile of head-dress, large pendant earrings, and moustache. The execution of this gem is particularly good.

No. 8. Garnet. A head of the same character as the last, and equally well executed.

No. 9. Cornelian. A bust, neatly and well engraved.

No. 10. Cornelian. A head, injured and coarsely cut.

No. 11. Cornelian. An animal with long ears or horns, from its hoofs probably intended for a stag.

No. 12. A Bronze Seal. I cannot make out the subject; surely it is not intended for Apollo destroying the Python? The figure is represented as trampling on the monster; he holds the tail with his right hand, and there is something in his left, but whether an instrument of destruction is not evident.

No. 13. An Agate Seal, the figure of an Indian bull.

No. 14. A Bronze Ring. This is a very common device on the rings found at Beghram. I have seen at least thirty with the same, and better finished than this.

No. 15. An Agate Seal. A coarsely executed bird of the genus Anas.

No. 16. A Copper Seal nearly effaced; it appears to be Sassanian, and to represent a fire altar, with the two supporters.

No. 17. A Bronze Ring, affording some matter for speculation. A large bag of relics was brought to me from Beghram, consisting of coins, pieces of brass ornaments, rings, &c. &c. I found amongst the lot at least fifty rings of various sizes and shapes, having on them this particular emblem or device.

No. 18. Cornelian. A horseman.

No. 19. A Bronze Ring which I found in the bag above mentioned; the figure of Victory is in high relief; it is purely Grecian, and is spiritedly and gracefully executed; the impression does not do it justice.

No. 20. Another Bronze Ring from the bag, with the same device as No. 14.

Gems from Beghram.



Letter to the Secretary of the Asiatic Society, on the recent Cataclysm of the Indus, from Dr. Falconer, *Saharunpoor, July* 6, 1841.

My dear Sir,—I have just perused in a letter from the frontier a brief and hurried account of some of the particulars of a grand Cataclysm of the Indus! certainly one of the most remarkable natural catastrophes hitherto recorded as having occurred on the continent of India, or any where else, in the deluge way. The details as yet are very imperfectly given, but they are of so intensely interesting a character, that I do not hesitate a moment to communicate them to you, in the hopes that the Government may do its best towards collecting authentic information, regarding the cause, extent, and effects of this flood. We all know how little impressed uncivilized nations are in the events of this kind: after the lapse of a few years, when the immediate effects have gone by, they are generally remembered only as imperfect traditions. The Government could with little trouble collect most of the desired information, through the political officers on the North-Western frontier; but much will be lost in the authenticity and fullness of the particulars if any considerable delay occurs in making the inquiry. I am especially interested in the event, from being well acquainted from personal observation with the remote and little known tract in Thibet, which I believe to have been the great scene of operations on the occasion; and I fancy I am the only person now in the country who has been there. Should the Government take the inquiry in hand, I will be most happy to give my humble aid in pointing out the kind of information desired, the situations where inquiry ought to be made, &c. and to work up the whole into a connected account, if desired.

You are well aware, from the descriptions of Burnes and other travellers, what a formidable river the Indus is near Attock. The depth was ascertained by Lieut. Wood, from actual measurement, to exceed many fathoms (I cannot at this moment quote the exact amount,) at the ferry between Attock and Khyrabad, notwithstanding that the velocity of the stream at this point is 9 knots an hour. It would appear that the river had been observed during *several months* past to be most unusually low, and to such an extent had the body of water lately diminished, that the deep bed at Attock was converted into an *easy ford!* (I quote

the words used.) All at once this state of things changed, the river burst in an awful débâcle through the obstacles which had held up its water somewhere along the upper part of its course, and rushed down the valley in a mighty flood. The particulars regarding the effects, are probably derived from native accounts. The words of the letter are nearly thus: "*Hundreds* of VILLAGES and TOWNS, including Khyrabad and Attock, were swept away, with thousands of human beings and cattle. The Lundaye, (or Cabul river, which joins the Indus, close above the fort of Attock,) had its water held up, and forced back so as to inundate the towns of Monshera and Akora (situated a long way up its course in the plain of Peshawur.) "In the Huzara country," probably between Durbund and Attock,) "the flood swept away *artillery guns*, with many hundreds of infantry and sowars; and old Sham Sing Atarewallah, a seik sirdar, had all his camp and followers carried down the stream, while he was himself, with a few troops, aloft pursuing the rebel, Paeouda Khan, (chief of Tuhaolee) through the hills. I have as yet only heard of the course of the inundation as far as Dera Ismail Khan, whence also the accounts are very distressing, and so they will continue to be I suppose, till it reaches the sea, for nothing else can contain it. But what must have been the condition of the unknown country flooded above the avalanche, since rumours of its fall have been prevalent for four months back? I conclude it must be the plains of Ghilgeet. The authorities on the Indus report the very foreign appearance of many bodies washing down."

So much for the particulars already received, which are only sufficient to excite our interest about what remains to be known. Now so far as I am aware, there is no flood on record at all approaching this grand débâcle of the Indus; that of the Val de Bagnes, of which so graphic an account has been given by Basil Hall, was confined to one of the subordinate lateral valleys of the Rhone, while the flood of the Indus has in all probability washed its desolating career across the continent of India. The gigantic scale of its operations can be guessed from the facts above given. The town and fort of Attock are situated on a rock, well raised above the river. Yet the place is here described as having been swept away, with hundreds of the towns and villages! The inundation of Akora and Noushera, situated so high up the Cabul river, speaks volumes to the same effect; while the suddenness and unexpected nature of the catas-

trophe are emphatically told in the fate of Sham Sing's followers! The drifting of artillery guns is quite a novel fact in geological operations of this sort: one would fancy, that it would require a good stiff current to walk away with a 24-pounder.

As to the cause, there can be little doubt but that it was occasioned by some unusual barrier temporarily established in the bed of the river somewhere high up its course, daming up its waters till they attained a volume too great for the strength of the obstruction. This may be fairly concluded, from what is said of the previous state of the ferry at Attock, which was in a great measure dried up. It is, you will observe, inferred that the stoppage occurred near the plains of Ghilgeet; I suspect however, that it must have taken place much higher up, either on the "R-gem-tsoh," or united body of the Indus above Iskardoh; or what is still more probable, on the "Noobra-tsoh" river, or Shayook above its junction with the Ludakh or great branch. During my stay in little Thibet, I, as well as Vigne, was able to settle the disputed geographical point, regarding which the statements and opinions of Elphinstone, Moorcroft, and Burnes, about the existence and point of confluence of two great branches of the Indus, are so conflicting. There are two great branches, the Southern or Ludakh river, along which Moorcroft descended; and the Northern or "Noobra-tsoh" branch (Shayook of Burnes, &c.) the confluence of which, (seen by Vigne and myself,) takes place at Chundon, close to the castle of Kirrus, about a day's journey above Iskardoh, and a long way below "Duroz." During my stay at Iskardoh, I learnt from the Rajah Ahmed Shah, that great floods occasionally take place at irregular intervals, in consequence of the Noobra-tsoh river, (so called from the purgunna of Noobra through which it flows,) getting blocked up by avalanches and masses of ice. This river has one of its principal origins in a great lake, as yet unvisited by Europeans, in the Kara Korum mountains. After winter seasons of unusual severity the lake gets sheeted over with an enormous mass of ice, and the valley of the river below the lake is liable to be filled up with great avalanches of *ice* and snow. When events of this kind go together, the disrupted masses of ice from the lake, added to the avalanches, go on accumulating till a huge barrier is formed, which dams up the river, leading to tremendous floods when the water bursts through the obstacle. A case of this kind was des-

cribed to me by the Rajah, as having occurred within his recollection, attended with desolating effects along the valley of the Indus in little Thibet. The river rushes down in a mighty torrent, sweeping every thing before it. Further I learnt at Attock, when going over the fort in 1837 with Burnes, that such heavy floods have been known in the river there, that the water has risen over the top of the "*Ab-doord*" bastion, perhaps 30 feet high, which insures the supply of water for the fort if besieged, and the base of which is usually almost on a level with the surface of the current. But I was not above to connect the two events as coincident in time of occurrence.

I do not think it at all likely that the obstacle occurred any where below Iskardoh, both from the configuration of the valley of the river, and from the difficulty of conceiving a barrier of snow or ice to be formed so low down; whereas higher up, on the Noobra river, avalanches are so common, and on so grand a scale, that it is easy to conceive the river being blocked up: and the temperature of the water is so low, that its action in the way of melting the ice would be very slow and partial. This objection appears to me to apply to the whole of the united river, as far up as the junction of the Ludakh branch. The "*very foreign appearance of the bodies washed down*," would indicate them to be at least from as high up as little Thibet, for the people of Ghilgeet and the "Dardohs" of that neighbourhood, are very much like the Pathans above Attock. The Chinese style of features first commences in and above little Thibet.

But these ideas at the best are merely conjectural, and I only advance them, with the object of guiding the direction of the inquiries. If the river really was so low at Attock as to be in the state of a practicable ford, it would seem to follow that the obstruction must have affected both branches of the Indus: for otherwise, the Ludakh river is large enough to supply of itself a large volume of water. The cause in that case would probably be found in a land-slip, or something of that kind, or mountain masses precipitated by an earthquake. An event of this sort is not improbable, for we know that in 1809 an earthquake of such force took place in Gurwah, that the Bishnoo Gunga river, one of the great branches of the Ganges, was blocked up below Goseenauth by a land slip, and the water rose to 40 feet above its usual level.

The points from which the best information may be expected, are Iskardoh in little Thibet; from Rajah Jubbar Khan, of Astore or Hussorah, in the Dardoh country, opposite Ghilgeet, where the Indus makes its great bend to the south; then from Jalkot in the Dardoh country, Durbund, Torbeila, Attock, Calabaugh, and the Derajats. The greatest effect of the flood will probably have been felt in the neighbourhood of Iskardoh; then near the low plains of Huramosh, Gór and Poorijee near Ghilgeet, where the river bends to the south; next at Durbund and Torbeila, where the effects must have been very great; then at the point where the Indus escapes from the hills into the plain of Chuch; then at Attock, and then at Calabaugh, where the river escapes from the salt range.

A few days more will likely put us in possession of many more authentic particulars derived from the whole line of the Indus, and should the flood turn out to have been really as grand and important an affair as appears from what we know at present, some inquiry regarding it should be instituted by those who have the power. The following occur to me as some of the most prominent points to be inquired into—the nature, cause, situation, amount, and date of the obstruction; length, breadth, and depth of the lake formed: and length of time occupied in its collection; date of the first perceptible subsidence of the river at Attock; and greatest amount of reduction estimated in decrease of depth, and if possible, in cubic feet of discharge per second, contrasted with average discharge; cause, period of, and "*modus operandi*," of the yielding of the barrier.

Date of the débâcle arriving at different points along the river, and period of its continuance; volume of water discharged in cubic feet per second; velocity and depth of the current; greatest rise of water at different points; appearance, colour, consistence, and temperature of the water; extent of the inundation; amount and nature of the effects produced, in the destruction of land and loss of human and animal life; number and names of towns and villages destroyed; with particulars of any remarkable changes in the physical configuration of the tract through which the flood passed; date of subsidence at different points; appearances observed, and effects produced in the Delta of the Indus, during and after the flood; in the stranding of carcases, animal or human; timbers; boats; amount of deposit;

silting up or clearing out any channels of the river previously navigable, or the reverse, &c. &c.

HENRY TORRENS, ESQ. &c. &c. *Calcutta.*

This letter was laid before the Governor General, when, with the usual kindly interest evinced by His Lordship on all scientific subjects, assurances were given, that occasion would not be lost sight of, for the purpose of making due inquiry into the causes of the phenomena described. Lord Auckland indeed addressed Mr. Clerk, (Gov. General's Agent, N. W. frontier), at length on the subject; but before the letter reached its destination, Mr. Clerk had already deputed Dr. Jameson, Civil Surgeon at Umbala, and for sometime our officiating Curator, for the purpose of inquiry. The results of this interesting mission will be anxiously looked for.

Note on the Fossil Jaw, sent from Jubbulpore by DR. SPILSBURY. *By the Acting Curator,* MR. PIDDINGTON.

At the request of our Secretary, I add the following remarks to those of Dr. Spilsbury on this fossil. I could wish the task had fallen into the hands of one qualified to draw inferences, which I cannot venture upon doing, but must content myself with stating facts as I observe them.

Since Dr. Spilsbury's note was written I find that the matrix (which is unfortunately a very hard conglomerate of rolled pebbles in a paste of coarse calcareous sandstone) has been chiselled off, so as to clear the side faces of the molar plates more than is seen in Dr. Spilsbury's drawing. I proceed to remark on the peculiarities which the fossil in its present state presents to an inexperienced eye, and on comparing it with both recent and fossil crania in the Museum. In its general appearance the remarkable differences are,

(1) The narrowness of the teeth; (2) the deep sulcus formed by their great protrusion below the palatal bone; (3) the closeness of the plates of the teeth, and the angle formed by the molars and incisors, which cannot be distinguished as separate with the posterior part of the jaw; (4) the transverse breadth of the jaw at the point where



Length $\frac{F}{2}$ - 1 ½
Breadth 11

A to B. extent of Teeth about 18 Inches
C. Matrix chisselled off to shew the fangs or roots some 11 In: deep
A to D Teeth rather injured not so perfect as D to B
E to F. Matrix entirely cleared off
G about this some appearance of the Foramen Magnum. but could not make out the Condyles.
N.B. Breadth of the Teeth about those of a Fossil Elephant and of the same structure.

G. Tebbs Delt
Camp near Nursingpoor
6th February 1838

the arch above the teeth rises to the side of the curved alveola of the tusks and the suborbital part of the malar bones; (5) the length of the jaw. I take these peculiarities in the order in which I have mentioned them.

1. *The narrowness of the teeth.*—Upon comparing our fossil with two fossil sculls, both I believe from the valley of the Nerbudda, and three recent ones in the Museum, I find the following dimensions as to breadth of the teeth:—

	Incisor.	Molar at the ridges.
The Fossil, ...	2.8 ...	... 2.4
A. First Fossil Scull (perhaps Mastodon Elephantoides,.	3.1 ...	... 3.5
B. Second, ...	3.0 ...	... 3.2
Recent Sculls ordinary size, 1st	3.1 ...	... 2.9
2nd	2.8 ...	.. 3.1
Large one, ...	3.8 ...	... 3.9

It will be seen that Cuvier, whose note I copy at pp. 624, 625, says that the breadth of the teeth of the fossil elephant (speaking of that of Siberia) is greater than that of the teeth of the* modern Indian elephant, the fossil ones being from 0.08. (3.3 Ins. Eng.) to 0.09 (3.7 Ins. Eng.) while the recent ones are from 0.06. (2.7 Ins. Eng.) to 0.07 (3 Ins. Eng.) In connection with other measurements of length and breadth, this variation in our fossil seems of much import.

2. *Depth of the sulcus formed by the teeth and palate at its deepest part.*—I cannot distinguish that any part of the palatal bone has been chiselled away, and thus I assume this remarkable difference to exist. I measure it at the deepest part I can find, which is generally near the angle.

	Depth from face of teeth to palate. Inches.	
The Fossil, ...	4.0 ...	and some matrix apparently remaining.
A. First Fossil Scull, perhaps Mast. Elephantoides?... ...	1.0 ..	palate perfect.
B. Second.	2.4 ...	palate perfect.

* Taking, as will be explained, (§ 3), the posterior plates or part of them to have been used as molars.

		Depth from face of teeth to palate. Inches,	
Recent Sculls, ordinary size, Large,...	1st.	3.7	
	2nd.	3.8	... palate perfect.
		5.8	

The breadth of this sulcus may also be of importance in the few dimensions we have for comparison: they are as below:—

	Greatest breadth of sulcus. Inches.	Breadth at front of the incisors. Inches.
The Fossil, ...	4.4	1.7
A. First Fossil Scull,	3.0	1.2
B. Second, ...	4.8	2.8
Recent Sculls, 1st.	4.9	2.4
ordinary, size, 2nd.	3.3	2.8
Large one, ... 3rd.	3.2	2.7

3. *The closeness of the plates of the teeth, and the angle formed by the molars and incisors.*—A space of two inches measured on the perfect part of the incisor included on :—

The Fossil, ...	8 ridges or	plates.
A. First Fossil Scull,	5	$2\frac{1}{2}$ „
B. Second, ...	5	$2\frac{1}{2}$ „
Recent Sculls, 1st.	6	3 „
ordinary size, 2nd.	8	4 „
Large one, ...	6	3 „

4. *The angle formed by the molars and incisors.*—I have called this so, because in our fossil, to all appearance the incisors occupy what may be termed the horizontal plane of the jaw, and the series of plates, which in the recent elephant form the posterior part of the molars, called by Cuvier Os. Fossils, pl. 9. fig. 2, *lames osseuses dont l'ensemble doit former la dent*, seem to have partly constituted the molars; for they are perfectly ossified, and though in the chiselling the top has been taken off, it is difficult from the texture (which by the way is not at all mineralized but truly ossified) to suppose that they cannot have been in use, or that the animal could have managed with only the 4 or 5 inches of narrow incisor or molar, which now present a flat surface.*

* Supposing always that the length and the breadth of the jaw at the rise of the facial arch, as hereafter noted, does not allow us to consider it as that of a young animal.



Three fossil and two recent Jaws, to illustrate remarks on Dr Spilsburys fossil Jaw from Jubbulpore

H.F. delt

What I mean, however, will be best shewn by the sketches in the plate, where—

A, is the Fossil: the angle at *a* being 110°.

B, Fossil head from Siberia (Cuvier Ossemens, F. pl. viii. fig. 1.) angle at *a*, 122°.

C, first Fossil Scull, Mus. As. Soc. perhaps Mastodon Elephantoides, angle *a*, of which one branch is the chord of the arc formed by the molars, 136°.

D, First recent Scull, No. 1 of the foregoing measurements angle *a*, 100°.

E, Large recent scull, No. 3 of foregoing measurements angle *a*, 95°.

In the plate the fossil A, with C D and E are drawn to the same scale, in B. from Cuvier there is no scale mentioned.

I have already alluded to the number of the plates in the incisor or horizontal part; in the posterior part of the jaw I should mention that they are separated by a soft, white, powdery mass, which easily gives way (much like chalk) to the knife; the plates themselves are hard, bony-like, and brittle, their length is about six inches, and on the most perfect side there are 21 plates in a space of $12\frac{1}{2}$ inches, all perfectly defined. In a recent scull I find 13 plates in a distance of 9 inches, which would give but 18 for $12\frac{1}{2}$ inches, and they are all loose, and so soft, as to yield to a slight touch of the tool. In a word, our fossil *seems* to have had these as true teeth, and not as germs, as in the modern elephant.

4. *The transverse breadth of the jaw.*—As this dimension is fortunately obtainable, I have thought it should not be neglected, as tending to throw light upon the question of the animal's age. As before mentioned, it is measured at that part of the incisive bone, where the arch rises. It should be remarked, that not being taken from a fixed point, it is, in so far, an approximative measurement depending on the accuracy of the eye in fixing upon nearly the same part of the arch as that which is taken in the fossil. The comparative dimensions are as follow:—

	Breadth of the jaw. Inches.
The Fossil, ...	10.4
A. First Fossil Scull as before, ...	11.1
B. Second, ...	imperfect.

	Breadth of the jaw. Inches.
Recent Sculls, 1st.	10.8
ordinary size, 2nd.	9.1
Large size, ...	12.5

5. *The length of the jaw.*—This dimension should perhaps be called its depth. I mean by it a direct line from the centre of the foramen magnum to the front of the incisors (B. plate 1.) In our fossil we have not been able to find the trace of the foramen magnum; but we have cleared away enough, I think, to warrant our saying, that if perfect, the depth of the jaw (or length as expressed above) would be quite what the fossil now is. The following are the measurements:—

	Feet. Inches.
The Fossil, about, ...	2 0
Fossil Sculls, ...	imperfect.
Recent Sculls, 1st....	2 2
Ordinary size, 2d.	2 1
Large size, 3d.	2 7

From the foregoing measurements, the peculiarities of this fossil may I trust be elucidated. I cannot venture, with my limited knowledge of the subject, upon drawing inferences. The following passages from Cuvier may perhaps be of use, to those who have not the work at hand; and apart from the earnest desire both of Mr. Torrens and myself, and I am sure of every member of the Society, to see justice done to so steady and active a contributor as Doctor Spilsbury, to whom the Geology and Paleontology of India is so greatly indebted; the last one may serve in some degree to explain why we have thought it just to him that every thing relative to this fossil, should it prove new, should be placed upon record. It is no small encouragement to the pioneers in every walk of Natural History, to learn, from the hand of Cuvier himself, that it is to a single memoir and plate, which had been neglected for seventy years in the Philosophical Transactions, that we owe the most magnificent series of discoveries, which have yet illustrated the former state of our globe!

Museum, 31st July, 1841. H. Piddington.

Notes from Cuvier.

Os. Foss. vol. i. p. 522.—I. "On a disputé sur le nombre des dents des éléphans: la Société Royale de Londres s'apperçut en 1715 qu'il

varie d'une a deux de chaque coté, et que la place de la division varie aussi; c'est à dire que la première dent est plus ou moins longue, à proportion de la seconde, suivant les individus.—Trans. Phil. Tome xxix, No. 349, p. 370."

Vol. ii. p. 177.—II "Mais le nombre (des lames des dants) pris sur des dents de longueur égale ne donnerait-il point de bons caractères? c'est ce que j'ai examiné sur un grand nombre de dents des *Indes* et *fossiles* et j'ai presque toujours trouvé les lames de ces dernieres plus minces, et par consequent plus nombreuses dans une même espace."

Vol. iii. p. 178.—"Un troisième caractére est pris de la largeur, tant absolue que proportionelle, des dents; beaucoup plus considerable dans l'éléphant fossile que dans celui des Indes. On peut s'en assurer par la cinquième colonne de ma table: où l'on voit que les fossiles ont presque toutes de 8.08 a 9.09, de largeur; et les dents du vivant de 0.06. a 0.07."

* * * * * * *

Vol. iv. p. 180.—"Ainsi on ne peut pas considerer la minceur des lames comme un caractère de l'éléphant fossile aussi général que la largeur de ses dents, et que les formes de ses machoires et de son crâne; cependant la largeur seule de ses machelières suffit pour les reconnaître, parcequ'elle est beaucoup plus constante."

P. 199.—Speaking of three fossil sculls, brought from Siberia, from the banks of the Indighirska, by the intrepid Danish traveller Messerschmidt, who gave a drawing of the best of them to Breynius, who engraved it to accompany a memoir inserted in the Philosophical Transactions. (It is that from which the outline B. in our plate is taken,)

he says, p. 201 : " Dès que je connus ce dessin de Messerschmidt, et que je joignis aux differences qu'il m'offrait celles que j'avais observées moi-même sur les mâchoires inferieures, et sur les molaires isolées je ne doutai plus que les *éléphans fossiles* n'eûssent été d'une espèce differente des *éléphans des Indes.* Cette idée que j'annonçai a l'institut dès le mois de Janvier 1796 m'ouvrit des vues, toutes nouvelles sur la théorie de la terre ; un coup d'œil rapide jeté sur d'autres os fossiles me fit presumer tout ce que j'ai découvert depuis, et me determina à me consacrer aux longues recherches et aux travaux assidus qui m'ont occupé depuis vingt cinq ans.

Je dois donc reconnaître ici, que c'est à ce dessein, resté pour ainsi dire oublié, dans les Transactions Philosophiques depuis soixante dix ans que je devrai celui de tous mes ouvrages auquel j'attache le plus de prix."

P. S.—Since this paper was written, I find in the Society's collection a strong corroboration of the surmise, that our fossil was an adult animal. A lower fossil-elephant's jaw, sent down by Mr. Conductor Dawe from Nahun, has the teeth, (or tooth, for there seems only one,) of exactly the same breadth as our fossil. The whole length of it is 6.9 inches, of which only 4.5 inches are worn down, the remainder standing up 0.8 inches above the rest, as if it had not been brought into use. In 2 inches, there are 7 ridges of enamel; our fossil having as will be recollected 8 ridges.

The dimensions of this lower jaw, compared with those of the lower jaw of our largest recent elephant (E of the plate,) are as follow :—

	Large recent Elephant, E. of the plate. *Inches.*	Jaw from Nahun. *Inches.*
Depth of lower jaw from the crown of the worn teeth to the lowest part of the arch of the jaw,	8.0	8.9
Thickness of the jaw at the thickest part,	7.4	5.8

TEETH.

Entire length, (2 teeth,)	11.0*	6.9
Worn surface, (1 tooth,)	11.0	4.5
Projecting,	0.0	2.4

From hence it will be seen, that we have, from two spots at least 600 miles apart,—our fossil being from the banks of the Nerbudda, and Mr. Dawe's from Nahun, on the banks of the Delhi Canal,—the remains of a race of narrow-toothed fossil elephants.

* All more or less worn.

Notes on Fossil Discoveries in the valley of the Nerbudda. *By* G. G. Spilsbury, Esq.

In continuation of my notes on the fossils of the Nerbudda valley, I beg to forward for presentation to the Society another series of drawings from the same able friend's pencil, and without whose cheerfully accorded aid, I should have little chance of being either intelligible or interesting.

A. is a set of six specimens drawn to the same scale.

No. 1. I had set down as that of the humerus of a buffalo, but am doubtful, from its answering almost completely in dimensions to a similar bone delineated in Captain Beechey's voyage as that of the Musk Ox; and to shew the great resemblance, G is the reverse drawing of No. 1 for comparison with Captain Beechey's, made to his scale and delineation.

No. 2. Is a portion of the femur of a similar animal.

No. 3. Portion of femur of elephant.

No. 4. Tooth of hippopotamus.

No. 5. Part of lower jaw of an elephant.

No. 6. Sacrum with last lumbar vertebra of some bovine animal.

B. No. 7. Lower jaw of a wild hog, and C. No. 7. in the next plate, is a somewhat different view of the same specimen.

No. 8. Part of the lower jaw, tusks, and teeth, imperfect, of the hippopotamus.

D. No. 9. Dexter half of the lower jaw of an animal of the deer kind.

No. 10. Portion of upper jaw and teeth of a deer.

E. Posterior molars of a hippopotamus.

F. Two drawings, frontal *a*, and occipital *b*, of a horned animal remarkable for the little depth of the skull, from the point at *b* to the condyles of the occiput being scarcely two inches; *c d* are reversed views of the chin of the hippopotamus; the original of which has been forwarded for presentation to the Museum, accompanied by seventeen other specimens.

Of the various sites and localities from which the foregoing have been derived, a few remarks may be necessary. They occupy a space (generally on the banks of the Nerbudda) from some miles above Jubbulpore down to Brimban-ghat, a distance of at least eighty miles by


No 1
2
3
4
5
6
P. A Reynolds del
1 2 3 4 5 6 12 18 19
Scale of Inches

B

7

G



Scale of Inches

8



P. A. Reynolds delt

Scale of One Foot

1 2 3 4 5 6 12

Ballou & Calvert

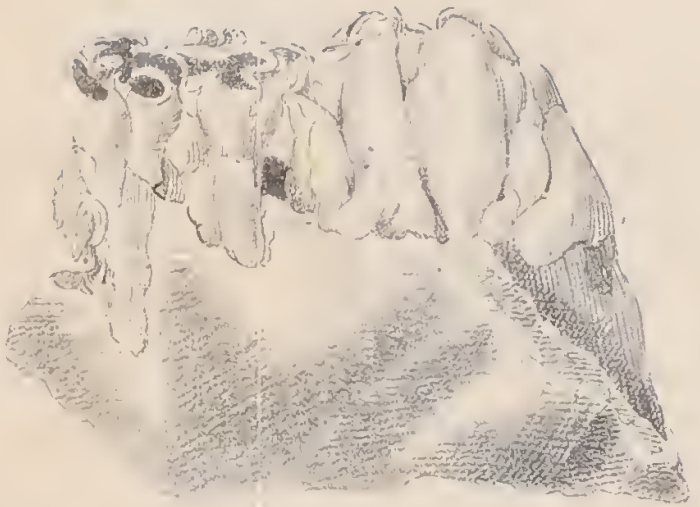
D



No 9

Scale of Inches

E



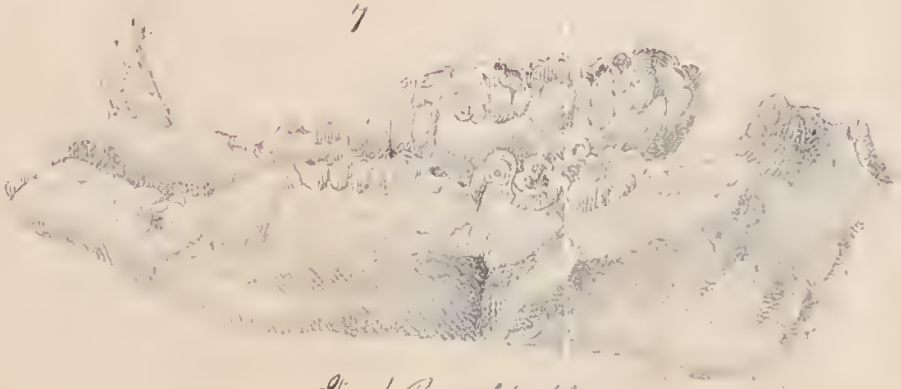
Scale of Inches

No 10



7

C



D. A. Reynolds del.

Scale of one Ft.



P. A Reynolds delt

0 10 20 Inches

Scale

Ballou & Co. Lith

the course of the river. The specimens of hippopotamus have chiefly been from the vicinity of Deo Pachur, from whence the huge specimens of the elephant, now in the Museum, were sent in November 1833, and an account published in the Journal of the Society, for August 1834. In addition to these, some few traces of turtle have been brought in, but no specimen of any carnivorous animal has as yet been found among the numerous graminiferous classes.

Camp, Gov. Genl. Agent at Rewah,
14*th February*, 1840.

Remarks by Dr. T. R. Roth.

Calcutta, January 18, 1841.

Returning to you with many thanks the drawings of fossil bones which you had the kindness to communicate to me, I embrace this opportunity to draw your attention on that figure which is marked B. No. 8, and by the learned gentleman who did send it, supposed to be the lower jaw of an hippopotamus. I own I was myself in the first time led to the same opinion by the very singular shape and breadth of the whole, and the situation of the tusks; but when I counted the teeth, and found 3. 1. 7, and much more, when I observed the small distance of the first molar from the tusk, and the shape of the last molar, I was not more at a loss; for all that shews me, that I have before me the jaw of a species of Palæotherium, which will very likely prove to be a new one, because it differs from all species known till now, by the obtuseness and breadth from one tusk to the other. I would suggest that you should induce your correspondent to send either more detailed drawings, or the specimen itself if possible, for further examination.

Fig. *a* and *b* I consider myself as a most extraordinary skull. The proportion of the margo orbitalis externus (posterior) to the tuber frontalis of the horn is like that of the Bos Grunniens; but the small height of the skull is very singular, and worth a full and accurate description.

d g and *n* I suppose are remains of two different species of Antelope. B 7 and C of Sus. E surely of hippopotamus; but whether A 4 belonged to an individual of the same kind I cannot tell at present.

Let me entreat you, Sir, to prevail with the gentleman, your correspondent, to submit rather the specimen, than drawings; for although, these now before us are beautifully executed, yet they want very much as to supply the specimens themselves.

I am directed by Herrmann de Meyer, Esq. of Frankfort on the Main, author of the "Palæologica," and other valuable geological works to distribute among the geologists of the Honorable Asiatic Society of Bengal, the prospectus of a new intended work, "Fauna der Vorwelt" (Faune of the former age.) The name of the author will be sufficient to shew what is to be expected by his genius and able pencil.

Note.—This prospectus is printed with this No. as an advertisement, and will continue so to appear till further notice.

Catalogue of the Birds in the Museum of the Asiatic Society. By J. T. Pearson, *Surgeon, formerly Curator of the Museum.*

Note.—I cannot omit this opportunity of thanking Mr. C. W. Smith, for the kindness with which he has lent me his Notes, to which I am so largely indebted in the following Catalogue.

J. T. P.

No. 1.
Class Aves.
Order Raptores.
Fam. Falconidæ.
Genus Haliæetus.
Sp. *H. Leucogaster.*

White bellied Eagle.

A specimen sent from the Chinese collection lately broken up at Macao: a portion of which, consisting of the animals mentioned in this and other branches of the Catalogue, was sent to the Museum of the Asiatic Society by Mr. Inglis.

2. *Haliæëtus Ponticerianus.*—Pondicherry Eagle.

Shot by the Curator, near Calcutta, and mounted in the Museum.

Falco Ponticerianus.—Gmelin's Lin. I. 263 Turton's Lin. I. 150.

Pondicherry Eagle. Latham's Gen. Hist. I. 147. Shaw's Gen. Zool. VII. 91.

Haliæëtus Ponticerianus. Stephens' continuation of Shaw's Zool. XIII. Part II. 13.

"Europeans have given this bird the appellation of Brahminy Kite, which originates probably in having observed that the Hindoos attach superstitious ideas to it. Among the Mahommedans there is a prevalent notion, that when two armies are about to engage, the appearance of one of these birds over either party, prognosticates victory to that side; thence its Arabic name of اقنا عقاب

"These birds are among the first objects which attract the eye of a stranger, for they swarm about the shipping at Calcutta, and are useful in removing any offal which may be thrown overboard; but though their usual food is carrion, yet they kill fish, and not unfrequently carry off a snipe which the sportsman has levelled."—*C. W. Smith's MS. Notes.*

The Brahminy Kite is a handsome bird, of an elegant form, and striking plumage; the rich red-brown of the back contrasting well with the white of the head, neck, and breast, the black of the quill feathers, and the yellow beak and legs. As Mr. Smith has stated, it is common at Calcutta; it is met with in the interior of the country, but not so often as at that place. At Garden Reach, the species is often observed in pairs, perching on the stump, or branch of a decayed tree; and numbers of them are to be seen flying over the Hoogly. It is perhaps possible, that there may be something like migration in the habits of this bird. I have thought that at some periods of the year it is more common than at others: in the cold season it abounds, while in the rains, it is rarely met with. Lieut. Montriou, of the Indian Navy, to whom I am indebted for much information on Indian Zoology, informs me, that it is rarely seen at Saugor in the cold season.

4. Genus Accipiter.

Sp. *A. Fringillarius.*—Sparrow Hawk.

Shot at Garden Reach, and mounted in the Museum.

5. *Accipiter*—? Chippuck Hawk.

Shot by the Curator at Garden Reach, and mounted in the Museum. This bird is called *Chippuck* by the natives.

6. Gen. Ierax.

Sp. *Ierax.*—Cohy Falcon.

Chinese collection *Cohy Falcon*, Lath. Gen. Hist.

"This is a scarce bird, it was sent to me by a native gentleman residing at Thekaree in the Gya district, who accompanied it by a note, in which he acquainted me, that a bird of the species had not been procured more than once in the memory of the oldest *shikaree;* and that it was thought to be a most auspicious circumstance to find one on the estate. This is the Cohy Falcon of Latham, whose figure of it is execrable, and it there appears any thing but a beautiful species. I observe that the chesnut plumage on the wings and scapulars of his bird, is not to be found in the present subject."—*C. W. Smith's MS. Notes.*

The Cohy Falcon is one of the most beautiful of the Falcon race; and you perceive at once that it is a high caste bird. Its posture is erect, its plumage glossy, form compact, and manner dauntless: while the crest on the head adds much to its grace and beauty. One was brought to me while at Midnapore, by a *shikaree*, or bird fowler; but I had not the heart to kill it, and after having kept it for some weeks, it broke from its perch and flew away. All my endeavours to procure another specimen were vain. Dr. Evans has one stuffed, and in good plumage, (which that belonging to the Society is not,) and in both these, the chesnut plumage mentioned by Mr. Smith as wanting in his specimen, is present: it may depend upon the sex or age of the specimen. The figure in Latham is certainly a very bad one; and gives no idea of the beautiful bird the Cohy Falcon really is.

7. Fam. Strigidæ.

Genus Strix.

Sp. *Flammea.*—Barn Owl.

Presented by P. Homfray, Esq. and mounted in the Museum.

Strix Flammea, Lin. Syst. Nat. I. 133. Turton's Lin. I. 171. Gmelin Lin. I. 293. Shaw's Gen. Zool. VII. 258. Stephens. XIII. 60.

Barn white Owl. Latham's Gen. Hist. I. 355.

Chouette effraie. Dict. Classique D'Hist. Nat. IV. 80.

"I found this bird in the dilapidated ruins about Boodh Gyah, and subsequently other specimens near Hadjipur, Tirhoot. It does not appear to differ from the white Owl of England."—*C. W. Smith's MS. Notes.*

Mr. Homfray's specimen was procured at Howrah.

Dr. Horsfield has named this bird *Strix Javanica*, thinking it different from the European species. And the compiler of the Catalogue of Col. Sykes' collection from the Duckhan, published in the proceedings of the Zoological Society for 1832, page 82, states, that "a comparison of several specimens with the European bird satisfies Col. Sykes, that Dr. Horsfield was right in separating it. Neither sex is unspotted beneath, nor has the Indian species a white disc."

8. Order Insessores.

Tribus. Fissirostres.

Fam. Meropidæ.

Genus. Merops.

Sp. M. *Viridis*. The green Bee-eater.

Presented and mounted by M. Bouchez. *Merops Viridis*. Syst. Nat, I. 182. Turton's Lin. I. 284. Gmelin Lin. I. 460. Shaw's Gen. Zool. VIII. 156. Stephen's XIII. 73. Latham. Gen. Hist. III. 122.

"These birds are very numerous throughout India, their time of incubation is the month of June, and for months after they are hatched, the whole brood congregate, and swim about with the swiftest and most entire movements through the air, making short dips and returning to the topmost twig, from which they took flight: during these evolutions they are busily employed in snapping up the insects."—*C. W. Smith's MS. Notes.*

The green Bee-eater has the power of gliding along for some distance without closing its wings; so that its flight consists of two parts, —a rapid commencement, in which the wings flap rapidly, and a quick glide, with the wings and tail fully expanded. Its motion, especially in this latter position, is extremely elegant; and its bright, almost metallic plumage, shining in the evening sun, gives one the idea of a very beautiful butterfly rather than of a bird.

9. *Merops Castaneus.* Chesnut Bee-eater.

From the Chinese collection. *Chesnut Bee-eater,* Latham Gen. Hist. 4,144, *Senegal Bee-eater.* Shaw. Gen. Zool. VIII. 163.

Guepier D'Adanson, Dict. Class. D'Hist. Nat. VII. 579.

10. *Merops*——?——Bee-eater.

From the Chinese collection, perhaps the female of the last specimen.

11. Fam. Hirundinidæ.

Genus Cypselus.

Sp. *C. Palmarum,* the Balearic Swift.

Shot by the Curator, and mounted in the Museum.

Figured in Hardwicke and Gray.

12. Fam. Caprimulgidæ.

Sp. *C. Asiaticus.*

Bombay Goat-sucker.

From the Chinese collection. *Caprimulgus Asiaticus,* Turton's Lin. I. 636. Shaw. Gen. Zool. X. 156.

Bombay Goat-sucker, Latham. Gen. Hist. VII, 337.

Engoulevent de Bombay, Dict. Class. D'Hist. Nat. VI. 167.

13. Fam. Todidæ.

Genus Eurystomus.

Sp. *Eur. Orientalis.* Oriental Eurystomus.

From the Chinese collection. *Coracias Orientalis,* Shaw. Gen. Zool. VII. 403, Latham. Gen. Hist. III. 77.

Colaris Orientalis, Lin. Trans. XIII. 162.

15. Fam. Halcyonidæ.

Genus Halcyon.

Sp. *H. Atricapilla.* Black-capped Kingfisher.

From the Chinese collection. *Alcedo Atricapilla.* Gmelin. Syst. Nat. I. 453. Turton. Lin. I. 279. Latham. Gen. Hist. IV. 30. Shaw. Gen. Zool. VIII. 70.

Martin Pêcheur de la Chine. Dict. Class. D'Hist. Nat. X. 227.

Halcyon Atricapillus. Stephens, XIII. 99.

15. *b.* Another specimen from the Chinese collection.

16. *Halcyon Smyrnensis.* Smyrna Kingfisher.

From the Chinese collection.

17. Another specimen presented and mounted by M. Bouchez.

18. Another specimen, shot by the Curator, and mounted in the Museum.

Alcedo Smyrnensis. Lin. Hist. Nat. I. 181. Gmelin. Lin. I. 459. Turton's Lin. I. 282. Shaw's Gen. Zool. VIII. 68. Latham's Gen. Hist. IV. 18. Griffiths' Cuvier, VII. 410.

Martin Pêcheur bleu et roux. Dict. Class. D'Hist. Nat. X. 227.

Halcyon Smyrnensis. Stephens' Shaw's Gen. Zool. XIII. 99.

" This bird is common throughout India, it is likewise possessed of great power, and I recollect a similar feat of courage* displayed by it, which in fact I made the subject of an oil painting. It has a sharp bustling note like the generality of the tribe when taking wing; pursues its finny prey below the surface, and is altogether a brisk lively bird."—*C. W. Smith's MS. Notes.*

The Smyrna King-fisher has been observed by the Curator in Bengal, Behar and Orissa; it is very common at Garden Reach, and indeed in all the neighbourhood of Calcutta.

19. *Halcyon Gurial.* The Gurial King-fisher. Presented by Mr. J. T. Pearson.

20. Another specimen, shot by the Curator, and mounted in the Museum.

Alcedo Gurial. Latham. Gen. Hist. IV. 12.

" This bird is not very common, but is more frequently met with in Bengal than in the other Provinces. It is very strong and powerful, as an instance of which I once observed a contest between one of them and a Hawk of considerable size, in which the Hawk was worsted, and obliged to leave his hold from the effects of a severe blow which the other administered to him on the breast. When wounded, considerable caution is required in handling, for a single blow would disable a person's hand."—*C. W. Smith's MS. Notes.*

As the published descriptions of the Gurial King-fisher are meagre, the following is here inserted. It was drawn up immediately after the death of the only specimen the Curator met with at Midnapore, during a four years' residence there. It is common near Calcutta.

* See Note to No. 20.

Olive brown and green King-fisher with red bill.

Weight $7\frac{1}{3}$ ounces.

Size that of a common pigeon.

Length, from the tip of the bill to the rump $11\frac{1}{2}$ inches, ditto from the tip of the bill to the tip of the tail 16 inches, ditto from ditto to the mid-claw $13\frac{1}{2}$ inches.

Ditto from the base of the bill to the rump $8\frac{1}{2}$ inches, breadth from tip to tip of the wings 22 inches.

Bill long and pointed; flat, like all the Halcyons, at the top, from the tip to the insertion of the fore-head 3 inches long, to the gape $3\frac{1}{2}$ inches; circumference at the base $3\frac{6}{10}$ inches, do. in the centre $1\frac{6}{10}$ inches, colour bright red with black tip. Margin of the eye-lids bare, red under eye-lid, furnished with a row of dingy olive brown feathers near the margin, and below buff coloured; iris dark red. Legs and feet bright scarlet. Head, cheeks, and upper two-thirds of the back of the neck dark olive brown; throat pale straw colour, almost white; breast, neck, and lower third of the back of the neck buff, with the tip of each feather bounded by a narrow margin of the same olive brown colour as the head, forming dotted crescent-like lines; breast, belly, inner wing coverts, thighs, and vent of a bright orange buff, upon a lighter ground; upper part of the neck, scapular, and lesser wing coverts dark brownish green; greater wing coverts, quills, sides of the lower part of the back, upper tail coverts, and tail, dark greenish blue; back from the shoulders to the rump bright azure with silky feathers, shining like satin; false wing of three feathers; quills blue on the outer side, and in the secondary a little blue towards the tips in the inner side, with black shafts, and inner web of the latter edged for two-thirds from the base with dirty white.

The Gurial King-fisher has a laughing screaming note. It is the largest Indian species known to the Curator. In the neighbourhood of Calcutta it is common, and probably in the whole Delta of the Ganges, or Sunderbunds, and Dr. M'Clelland brought specimens from Assam. Its flight consists of short quick jerks, very vigorous, and long continued. In fishing it does not hover; but perches upon the high bamboo bush, or on a middle-sized tree over a pool, waiting for its prey, where its blood-red bill shines brightly in the sun, and its great size, and violent plunge into the water, give one the idea of a noble bird.

21. *Halcyon Amauropterus.* Mihi. Brown winged King-fisher.

This bird appears to be undescribed, and indeed hitherto unknown. It has been named as above by the Curator; and the following is its description:—

Large fawn coloured King-fisher, with brown wings and tail.—Length from tip of bill to the end of the tail 14 inches, breadth from tip to tip of the wings 16 inches, length of bill $3\frac{1}{4}$ inches. Bill and feet scarlet. Head, neck, belly and neck fawn coloured or buff, each feather tipped with brown. Wings and tail smoke coloured. Back cærulean blue. Iris dark brown.

Found near Calcutta.

22. *Halcyon Collaris.*—Collared King-fisher.

From the Chinese collection.

Alcedo Collaris. Turton's Lin. I. 280. Shaw. Gen. Zool. VIII. 80.

Collared King-fisher. Latham Gen. Hist. IV. 27.

Martin-Pêcheur a collier blanc. Dict. Class. D'Hist. Nat. X. 227.

23. Genus Alcedo.

Sp. *A. Rudis.*—Pied King-fisher.

Shot by the Curator, and mounted in the Museum.

Alcedo Rudis. Lin. Syst. Nat. I. 181. Gmelin Lin. I. 454. Turton's Lin. I. 283. Shaw. Gen. Zool. VIII. 63.

Black and white King-fisher. Latham. Gen. Hist. IV. 15.

Martin Pêcheur Pie. Dict. Class. D'Hist. Nat. X. 231.

"This species is very numerous; there is not a river, stream or pool without its complement of these birds, where they may be seen constantly on the look-out, hovering like this tribe, and anon plunging beneath the water in pursuit of their prey."—*C. W. Smith's MS. Notes.*

The Pied King-fisher is not so common in the neighbourhood of Calcutta as in Behar and Orissa. At Midnapore it is very common, and forms a striking feature in the picture of nature, as it hovers in the beauty of its glossy black and white, satin-like plumage, over the streams. From a height of 20 or 30 feet it plunges down dead as a stone into the water, and remains below it so long, that the ripple over the surface clears away sometimes before it comes up again.

The Pied King-fisher is a very beautiful bird; its plumage being smooth, snowy white, and jet black, in patches of irregular size and

shape, shining like satin, and lying very close. On the top and back of the head the feathers are loose, and somewhat lengthened into a plume.

24. Another specimen from the Chinese collection.

25. *Alcedo Bengalensis.*—Indian King-fisher.

Shot by the Curator, mounted in the Museum.

Alcedo Bengalensis, Gmelin. Syst. Nat. I. 450. Turton Lin. I. 277. Shaw. Gen. Zool. VIII. 102.

Indian King-fisher, Latham. Gen. Hist. IV. 43. Griffith's Cuvier, VII. 409.

Martin Pecheur du Bengale, Dict. Class. D'Hist. Nat. VII. 409.

" This species is pretty common, and much resembles the British King-fisher in its motions, rapidity of flight, and note."—*C. W. Smith's MS. Notes.*

The Bengal King-fisher is very common in the neighbourhood of Calcutta. It is frequently seen seated on a stick standing upright in a paddy field, watching for small fishes in the shallow water, when its red breast shining in the morning sun seems like a living ruby.

26. Genus Ceyx.

Sp. *C. Azurea.*—The Azure King-fisher.

From the Chinese collection.

Alcedo Tribrachys. Shaw. Gen. Zool. VIII. 105.

Azure King-fisher. Latham. Gen. Hist. IV. 61.

Ceyx Azurea. Stephens' Shaw's Gen. Zool. XIII. 106.

27. Trib. Dentirostres.

Fam. Musicicapidæ.

Genus Muscipeta.

Sp. *M. Flaviventris.*—Yellow bellied Fly-catcher.

Muscipeta Flaviventris, Griffith's Cuvier, VI. 334.

28. Genus Muscicapa.

Sp. *M. Azurea.*—Azure Fly-catcher.

Celestial Fly-catcher. Latham Gen. Hist. VI. 201.

Muscicapa Azurea. Stephens' Shaw's Zool. XIII. 116. Griffith's Cuvier, VI. 341.

29. *Muscicapa Flammea.*—Flameous Fly-catcher.

Shot by the Curator, and mounted in the Museum.

Muscicapa Flammea. Shaw. Gen. Zool. X. 372.

Flammeous Fly-catcher. Latham Gen. Hist. VI. 173.

Muscipeta Flammea. Zool. Proceedings, 1832, p. 85.

"I met with this bird in a grove of trees near Gyah, there were a pair of them, the female merely differing in the plumage being less bright."—*C. W. Smith's MS. Notes.*

The specimens in the Museum were shot at Garden Reach in the beginning of the year 1836, when a flight of them settled in some lofty larch trees. The morning was foggy, and none were seen during a space of two months afterwards. A specimen was brought to the Curator at Midnapore. He has also seen them at Juanpore, and they are not uncommon at Darjeeling. The female is yellow where the male is red.

29. Another specimen of the Flammeous Fly-catcher. *See Note above.*

30. *Muscicapa Cærulea.*—The Cærulean Fly-catcher.

Shot by the Curator, and mounted in the Museum.

Muscicapa Cærulea. Gmelin. Lin. Syst. Nat. I. 943. Turton's Lin. I. 579. Stephens' Shaws' Gen. Zool. X. 383 Griffith's Cuvier, VI. 341.

Azure Fly-catcher. Latham Gen. Hist. VI. 180.

Gobe-mouche Azur. Dict. Class. D'Hist. Nat. VII. 401.

The Cærulean Fly-catcher is a native of Bengal. It is common at Garden Reach and its vicinity, where it is to be seen in the lower branches of the mangoe trees, from whence it now and then takes a short flight in pursuit of insects, returning again immediately to the same tree.

31. *Muscicapa* ————. Broad-tailed Fly-catcher.

Shot by the Curator, and mounted in the Museum.

Broad-tailed Fly-catcher. Latham. Gen. Hist. VI. 178.

The broad-tailed Fly-catcher is met with at Garden Reach, near Calcutta. Its habits are much the same as those of the Cærulean Fly-catcher.

31. *Muscicapa Verditer.* Verditer Fly-catcher.

Shot by the Curator, and mounted in the Museum.

Verditer Fly-catcher. Latham. Gen. Hist. VI. 182.

The Verditer Fly-catcher is found in the neighbourhood of Calcutta, but it is not very common. The Curator has not seen it any where else.

32. *Muscicapa* ——. Fly-catcher.

Chinese collection

33. Fam. Laniadæ.

Genus Tyrannus.

Sp. *Tyr. Leucogaster.* Tyrant Shrike.

Lanius Tyrannus. Lin. Syst. Nat. I. 136. Gmelin. Lin. I. 302. Turton's Lin. I. 176. Shaw's Gen. Zool. VII. 304.

34. Genus Ocypterus.

Sp. *Ocy. Rufiventer.* Red-bellied Ocypterus.

Presented and mounted by M. Bouchez.

Langrayen a ventre roux. Dict. Class. D'Hist. Nat. IX. 209.

Ocypterus Rufiventer. Griffith's Cuv. VI. 288.

35. *Ocypterus Leucogaster.* White-bellied Ocypterus.

Chinese collection.

Lanius Leucorhynchus. Gmelin's Lin. I. 305. Turton's Lin. I. 178. Shaw's Gen. Zool. VII. 323.

Artamus Leucorhynchus. Steph. Shaw. Gen. Zool. xii. 137.

Artamus Leucogaster. Griffith's Cuv. VI. 287.

Langrayer a ventre blanc. Dict. Class. D'Hist. Nat. IX. 290.

36. Genus Dicrurus.

Sp. *D*———. Shrike.

37. *Dicrurus Indicus.*—Long-tailed Shrike.

Shot by the Curator, and mounted in the Museum.

Drongo Drongolon. Dict. Class. D'Hist. V. 621.

"This species is common throughout India; it is to be seen in every field, is restless, and constantly in motion; and frequently to be seen on the backs of cattle extracting the vermin. It feeds upon insects, is a ferocious and most pugnacious bird, will occasionally kill small birds, with the utmost nonchalance will attack the crow and

kite, which it drives before it as if defeat was a stranger to it. We have therefore no difficulty in the derivation of its vulgar name of the King-crow".—*C. W. Smith's MS. Notes.*

The *Dicrurus Indicus* is one of the most common birds in Bengal. It is to be seen at all seasons mounted on walls, hedges, and the tops of palings, and elevated things of the kind, watching for insects, which it darts upon by a short quick flight, and returns again to its place. In form the King-crow, as it is termed, is very elegant. It is compact and well proportioned, and greatly ornamented by the rich glossy black of its plumage, and the graceful outward curve of either side of its long forked tail. In manner it is lively and bold, but not familiar. And altogether, the King-crow is one of the most striking, and most pleasing objects of Indian animated nature.

38 ——. Chinese collection.

39. Genus Lanius.

Sp. *L. Italicus.*—Italian Shrike.

40. *Lanius Rufescens.*

41. *Lanius Curcutti.* Corcutti Shrike.

Shot by the Curator, and mounted in the Museum.

42. *Lanius* ——.

Chinese collection.

43. *Lanius* ——.

Chinese collection.

44. Fam. Merulidæ.

Genus Pitta.

Sp *P. Bengalensis.*—Bengal Pitta.

Presented by Lieut. Vickery, and mounted in the Museum.

45. *Pitta Eurythrogastra.*—Red-bellied Pitta.

Chinese collection.

Pitta Erythrogastra.—Stephens' Shaw's Gen. Zool. XIII. 185.

46. *Pitta* ——. Chesnut-crowned Pitta.

Presented by Dr. McCosh, and mounted in the Museum.

This specimen was procured by Dr. McCosh in Assam. It apparently differs from any hitherto described species.

47. Genus Ixos.

Sp. *I. Jocosus.*

Pink-eared Bulbul.—Jocose Shrike.

Lanius Jocosus. Lin. Syst. Nat. I. 138. Gmelin. Lin. I. 310. Turton's Lin. I. 181.

Jocose Shrike. Lath. Gen. Hist. II. 41.

Lanius Emeria. Shaw Gen. Zool. VII. 332.

Brachypus (?) *Jocosus.* Steph. Shaw, XII. 191.

"These birds are in great request among the natives, being of a fearless disposition, and easily reclaimed. They are taught to sit on the fist, and numbers may thus be seen in any Indian bazar. They have a pretty smart appearance, and the head has an uncommon and handsome plume; but the song, though the few notes of which it is composed are sweet, has neither much strength nor any variety."—*C. W. Smith's MS. Notes.*

The ear of this bird is clothed with pink feathers, from which character the Curator has ventured to add the English name given above, as, at least, quite as expressive as those it has before. The species is found in great numbers near Calcutta, congregating together on the tops of high bushes, and in middle sized trees. It is also to be met with in Behar and Orissa, and Col. Sykes found it in the Deccan only in the lofty woods of the Ghauts. It is called Bulbul by the natives of India. A good account of its habits is given in Latham's General History of Birds, vol. ii, page 41.

The plumage of the pink-eared Bulbul is glossy in the black and white parts, and the long narrow feathers of the plume are very soft and beautiful, though not silky.

48. *Ixos* ——. Common Bulbul.

Shot by the Curator, and mounted in the Museum.

This is the largest of the two Bengal Bulbuls, and is the variety of Latham's Jocose Shrikes. It is found in great numbers congregating together upon trees and bushes, throughout all the parts of the provinces of Bengal, Behar, and Orissa; and I believe in all parts of India. It is a noisy chattering bird, with a whistle like one of the lower notes of the English Blackbird.

"In a state of nature the song of this bird is rather contemptible, but when reclaimed and placed near to better songsters, it greatly improves. This species is very common, and there are several varieties, one of which has a small patch of scarlet on the lesser coverts. It is, however, the Cashmere Bulbul, which is so highly prized, and is generally esteemed the most melodious songster in India."—*C. W. Smith's MS. Notes.*

49. *Ixos* ——.

Chinese collection.

50. Genus Oriolus.

Sp. *Oriolus Chinensis.*—Chinese Oriole.

Chinese collection.

Oriolus Chinensis. Lin. Syst. Nat. I. 160. Gmelin I. 383.

Cochin China Oriole. Lath. Gen Hist. III. 139.

Chinese Oriole. Shaw. Gen. Zool. VII. 412.

Oriolus Sinensis, Synop. Griffith's Cuv. VI. 397.

51. *Oriolus Melanocephalus.*—Black-headed Oriole.

Shot by the Curator, and mounted in the Museum.

Oriolus Melanocephalus. Lin. Syst. Nat. I. 160. Gmelin I. 383.

Black-headed Oriole. Lath. Gen. Hist. III. 140. Shaw's Gen. Zool. VII. 411.

"This bird is dispersed throughout India, it frequents groves, and is constantly flying from tree to tree. In the spring its plaintive note resembles one lengthened full toned note on the flute; ushers in the dawn; and resounds from every side. It feeds upon the berries of the Bhur and Pepul trees and on insects."—*C. W. Smith's MS. Notes.*

The black-headed Oriole is a very common bird in all parts of Bengal, and Mr. Smith mentions it above as dispersed throughout India; but Col. Sykes saw it only in the neighbourhood of the Ghauts in the Deccan, where its place seems to be filled by the *Oriolus Galbulus,* the golden Oriole of Latham, which is said to be very abundant there. Its monotonous, low-toned, constantly repeated note is a positive pest, excelled only by that of the Koel, (*Eudynamys Orientalis,*) or Indian Cuckow.

52.

53. Genus Turdus.

Sp. *T. Migratorius.*—American Robin.

Presented by Dr. Lea.

Turdus Migratorius. Lin. Syst. Nat. I. 292. Gmelin I. 811. Turton's Lin. I. 492. Shaw's Gen. Zool. X. 276.

Red-breasted Thrush. Lath. Gen. Hist. V. 144.

American Robin. Griff. Synop. Cuv. VI. 383.

The Robin. Wilson's American Ornithol. Edit. 1831, Edin. II 112.

54. *Turdus Saularis.*—Little Indian Pie.

Presented and mounted by M. Bouchez.

Gracula Saularis. Lin. Syst. Nat. I. 165. Gmelin Lin. I. 397. Turton's Lin. I. 240. Shaw's Gen. Zool. VII. 474.

Dial Grakle. Lath. Gen. Hist. III. 165.

Turdus Saularis. Sykes' Catalogue, Zool. Proc. pt. 2. 1832. p. 87.

"This familiar and sociable bird often reminds me of its more beautiful brother the British Red-breast; like to that pretty and amiable visitor, it is seen much about the habitation of man, and has all its smart and quick motions. Its song is also similar, and when domesticated it may be taught to speak."—*C. W. Smith's MS. Notes.*

The Dial is a lively, active little bird, rather like a little magpie, having a bright glossy-like black plumage, with snow-white band on the wings, and under parts of the same. It hops about like a Robin, pertly cocking its tail, and whistling a somewhat similar melody. It is very common in Bengal, in the neighbourhood of Calcutta; but less so in the Mofussil, though I have frequently seen it in the provinces of Behar, Orissa, and Allahabad. The plumage of the female is similarly marked to that of the male; but not so glossy.

55. *Turdus* ——.

American collection.

56. *Turdus Surpowee.*—Milh. Surpowee Thrush.

Shot by the Curator, and mounted in the Museum.

I have found this bird only in the neighbourhood of Calcutta, where it is not uncommon. It is generally met with near jheels, hopping about the lower branches of overhanging bushes, or upon the ground.

at the brink of the water. I have named it, as M. Bouchez told me it is called by the natives; and I should have described it had I not been obliged to leave Calcutta; and I have now no specimen to refer to.

57. Genus Sibia, Hodgson.

Sp. *S. Nigriceps* Hodgson.—Black-headed Sibia.

Presented by Mr. Hodgson from Nepaul; and another by Mr. Bruce, who received it from Almorah, whence it was sent to him by Lieut. H. Huddleston, 7th Regt. N. I. It is very common at Darjeeling. Mounted in the Museum.

58. *Sibia Picaoides.*—Hodgson's Picaoid Sibia.

Presented by Mr. Hodgson, from Nepaul. Mounted in the Museum.

59. *Sibia* —— *?*

Presented by Mr. Bruce, who received it from Lieut. Huddleston at Almorah. Mounted in the Museum.

60.—— ————

Presented by Mr. Bruce. Also from Almorah. Mounted in the Museum.

61. *Turdus* ——.

62. Fam. Sylviadæ, Vigors.

Genus Sylvia, Auct.

Sp. *S. Rubetra.*—Whin Chat.

Chinese collection.

63. *Sylvia* —— ?

Chinese collection.

This specimen appears to be allied to, if not a variety of 62.

64. *Sylvia* —— ?

Shot by the Curator, and mounted in the Museum. Probably a variety of the above.

65. *Sylvia* —— ?

Shot by the Curator at Garden Reach, and mounted in the Museum. This bird is called Chick-chickee by the natives.

66. *Sylvia* ——?
Chinese collection.

67. *Sylvia* ——?
Presented by Captain Pemberton.

68. *Sylvia* ——?
Chinese collection.

69 *Sylvia* ——?—The Saumer.

70.

71. Genus Malurus, Vieillot.

Sp. *M. Longicaudus.*

Motacilla Longicauda. Gm. Lin. I. 954. Turton Lin. I. 586.

Sylvia Longicauda. Shaw Gen. Zool. X. 756.

Long-tailed Warbler. Lath. Gen. Hist. VII. 119. Griffith's Cuv. VII. 467.

Shot by the Curator, and mounted in the Museum.

Common in the neighbourhood of Calcutta, and where, according to Latham, it is called Toon-toonee. He says, "the nest found among mangoe trees, most commonly in shape of a purse, generally composed of two living leaves attached together by fibres, somewhat in the manner expressed in the *Indian Zoology* as belonging to the Tailor Warbler, though not with so wonderful a construction; the hollow space between the two leaves is lined with cotton by way of nest, and the eggs are three in number, whitish, marked with flesh-coloured spots, in length three-fifths of an inch."

72.

73.

74. Genus Jora, Horsfield.

Sp. *J. Scapularis.* Horsf.

Jora Scapularis. Horsf. Lin. Trans. XIII. 152. Stephens' Shaw Zool. XIII. 217.

Shot by the Curator, and mounted in the Museum.

The *Jora Scapularis* is very common in the neighbourhood of Calcutta. It is also to be met with in Orissa.

75.

76. Genus Malurus.

Sp. ————

Chinese collection.

77. *Malurus Cyaneus.*—Superb Warbler.

Presented by Captain Pemberton.

Motacilla Cyanea. Gm. Lin. I. 991. Turton's Lin. I. 611.

Sylvia Cyanea. Shaw Zool. X. 754.

Superb Warbler. Lath. Gen. Hist. III. 117. Griffith's Cuv. VI. 468.

Malurus Cyaneus.—Stephens' Shaw's Zool. XIII. 223.

Inhabits the southern parts of New Holland.

78. *Malurus Cyaneus.* Superb Warbler.

Another specimen from the Chinese collection.

79. Genus Anthus, Beckstein.

Sp. *A. Agilis.* Sykes, Proc. Zool. Soc. 1832. p. 91.

Shot by the Curator at Garden Reach, and mounted in the Museum.

80. *Anthus Trivialis.*—Pipit Lark.

Shot by the Curator at Garden Reach, and mounted in the Museum.

Alauda Trivialis. Lin. Syst. Nat. I. 288. Gm. Lin. I. 796. Turt. Lin. I. 483. Stephens' Shaw's Zool. XIII. 238.

Alauda Sepiaria. Shaw's Zool. X. 542.

Pipit Lark. Latham. Gen. Hist. VI. 278.

Field Lark. Griffith's Cuv. VI. 477.

The present specimen was shot in the cold weather. I have not seen it but at that season; and so far it agrees with Latham's remark of its habits in England, that it is rarely seen, except in the winter-months.

81. Fam. Pipridæ.

Genus Parus. Lin.

SP. *P. Cristatus.*—Crested Titmouse.

Parus Cristatus. Lin. Syst. Nat. I. 340. Gm. Lin. I. 1005. Turton's Lin. I. 622. Shaw's Zool. X. 64 and XIII. 246.

Crested Titmouse. Lath. Gen. Hist. VII. 249. Griffith's Cuv. VII. 121.

82. Genus Pardalotus, Vieillot.

Sp. *P. Australis.*—New Holland Manakin.

New Holland Manakin. Lath. Gen. Hist. VII. 238.

Pardalotus Australis. Stephens' Shaw's Zool. XIII. 252.

83. Fam. Fringillidæ.

Genus Ramphocelis, Desmarest.

Sp. *R. Jacapa.*

Chinese collection.

Tanagra Jacapa. Lin. Sys. Nat. I. 313. Gm. Lin. I. 888.

Red-breasted Tanager. Lath. Gen. Hist. VI. 2. Griffith's Cuv. VI. 317.

Ramphopis Jacapa. Shaw's Zool. X. 439.

84. Genus Alauda, Auctorum.

Sp. *A*——— Finch Lark.

Shot by the Curator, and mounted in the Museum.

Finch Lark. Lath. Gen. Hist. VI. 307.

I shot the present specimen at Garden Reach, during the cold weather, but Latham states it to be found at Cawnpore in the month of April. I do not find it in any other author. Neither Franklin, Sykes, nor Tickell have mentioned it.

85. ————————

Chinese collection.

86. ————————

Chinese collection.

87. Genus Fringilla, Auctorum.

Sp. *F. Cœlebs.*—The Chaffinch.

Chinese collection.

Fringilla Cœlebs. Lin. Syst. Nat. I. 318. Gm. Lin. I. 901. Turton's Lin. I. 552. Steph. Shaw's Zool. IX. 442. and XIV. 37.

Chaffinch. Lath. Gen. Hist. VI. 57.

The Chaffinch. Griffith's Cuv. VII. 138.

Gros-bec Pinson. Dict. Class. D'Histoire Nat. VII. 537.

This specimen may possibly be a native of China, and if so, it has a new locality. Latham says, it is met with on the Coast of Africa, at the Cape of Good Hope, and at Aleppo. I have not seen nor heard of it in India.

88. 89.—Fam. Loxiadæ.

Genus Loxia. Ray.

Sp. *Loxia Punctularia.*—Cowry Grosbeak.

Shot by the Curator, and mounted in the Museum.

Loxia Punctularia. Lin. Syst. Nat. I. 302. Gm. Lin. I. 851. Turt. Lin. I. 520. Steph. Shaw's Zool. IX. 330. Griffith's Cuv. VII. 152.

Cowry Grosbeak. Lath. Gen. Hist. V. 247.

Gros-bec Domino. Dict. Class. D'Hist. Nat. VII. 526.

Coccothraustes Punctularia. Stephens' Shaw's Zool. XIV. 87.

The Cowry Grosbeak flies in large flocks, and is to be met with in most parts of Bengal. Like the Amaduvade Finch, there are many varieties.

90. *Loxia Malacca.*—Malacca Grosbeak.

Presented and mounted by M. Bouchez.

Loxia Malacca. Lin. I. 302. Gm. Lin. I. 851. Steph. Shaw's Zool. IX. 332.

Malacca Grosbeak. Lath. Gen. Hist. V. 244. Griffith's Cuv. VII. 152.

Gros-bec Jacobin. Dict. Class. D'Hist. Nat. VII. 530.

90. b. *Loxia Coccothraustes.*—Haw Grosbeak.

Loxia Coccothraustes. Lin. I. 299. Gm. Lin. I. 844. Steph. Shaw's Zool. IX. 236.

Coccothraustes Vulgaris. Stepb. Shaw's Zool. XIV. 86.

Haw Grosbeak. Lath. Gen. Hist. V. 211.

Common Grosbeak. Griffith's Cuv. VII. 156.

Gros-bec Commun. Dict. Class. D'Hist. Nat. VII. 524.

91. *Loxia Leucocephala.*—White-headed Grosbeak.

Chinese collection.

Fringilla Leucocephala. Steph. Shaw's Zool. IX. 493.

Spotted-sided Grosbeak. Latb. Gen. Hist. I. 248.

Gros-bec a tete blanche et dos rouge. Dict. Class. D'Hist. Nat. VII. 542.

92. *Loxia Astrilda.* Wax-bill Grosbeak.

Loxia Astrilda. Lin. I. 303. Gm. Lin. I. 852. Turton's Lin. I. 520.

Wax-billed Grosbeak. Lath. V. 257.

Coccothraustes Astrilda. Shaw's Gm. Zool. XIV. 87.

Gros-bec Astrild. Dict. Class. D'Hist. Nat. VII. 520.

93. Fam. Sturnidæ.

Genus Acridotheres, (?) Vieillot.

Sp. *A. Varius?*—Pied Grakle.

Chinese collection.

Pied Grakle. Lath. Gen. Hist. III. 169. Shaw's Zool. VII. 464.

94. Genus Sturnus. Lin.

Sp. *S. Vulgaris.*—Common Starling.

Chinese collection.

Sturnus Vulgaris. Lin. I. 290. Gm. Lin. I. 801. Turton's Lin. I. 487. Steph. Shaw's Zool. X. 483. XIV. 52.

Common Stare. Lath. Gen. Hist. V. 1. Griffith's Cuv. VII. 172.

I have never seen the common Starling in Bengal; but in the cold season 1837-38, a specimen was brought me at Juanpore; in no wise differing, as I thought, from the English bird.

95. *Acridotheres Tristis.*—Common Mynha.

Shot by the Curator, and mounted in the Museum.

Paradisea Tristis. Lin. I. 167. Gm. Lin. I. 401. Turt. Lin. I. 242.

Paradise Grakle. Lath. Gen. Hist. VII. 147. Shaw's Zool. VII. 455.

Acridotheres Tristis. Steph. Shaw. XIV. 57.

"This species is exceedingly numerous, and is generally diffused throughout India, even the sparrow is not more frequent; in its manners it is as noisy, and nearly as familiar; like that bird it not unusually makes its nest in the house thatch, or between the rafters. It is very prolific, and has several broods during the year. A pair made their nest in the beams of my verandah, during the rainy season of 1822, and to my surprise had two successive broods within a very short period of each other; but the vermin was so numerous that I was obliged to have the nest destroyed, and the crevice filled up. It is a brisk lively bird, apt to learn words and to whistle, and withal becomes very attached to its master; so much so, that instances are

known in which it has been allowed to range abroad during the day, with a confidence of its return at night."—*C. W. Smith's MS. Notes.*

The *Acridotheres Tristis* is, as every body knows, one of the merriest birds in India, which has caused some to wonder at the trivial name given by Linnæus. That great naturalist, however, placed it among the Paradise birds, and contrasting its sombre clothing with the brilliant plumage of the rest of that genus, he gave it the name of Tristis, not from its disposition, but its raiment. It is the Pastor Tristis of Temminck, Franklin, and Sykes. Its locality as given by the older writers, is India and the Philippine Islands. Colonel Franklin found it on the banks of the Ganges, and Colonel Sykes in the Deccan. I myself have seen it wherever I have been, except Darjeeling; it most abounds in Bengal. Beyond doubt it is, as Mr. Smith observes, the commonest bird in India. It was imported into the Island of Bourbon to destroy the grasshoppers, and was found so useful as to be especially protected by the laws. Latham says, it builds twice a year, and at each time lays four blue eggs. The natives of India are almost as fond of it, and tame and pet it as much as they do the Parroquet. They procure the young birds by placing an earthen pot in the fork of a tree, the mouth being put at the side to defend it from the weather, for it to breed in, and take the little ones when rather more than half-fledged. The young bird is taught to speak and whistle, and soon becomes very fond of his master.

96. *Acridotheres Malabaricus.*—Malabar Mynha.

Shot by the Curator at Garden Reach, and mounted in the Museum.

Turdus Malabaricus. Gm. Lin. I. 815. Turt. Lin. I. 496..

Malabar Grakle. Lath. Gen. Hist. III. 151. Shaw's Gen. Zool. VII. 471.

Turdus Malabaricus. Steph. Shaw's Zool. X. 305.

Acridotheres Malabaricus. Steph. Shaw's Zool. XIV. 57.

Latham, on the authority of Dr. Buchanan, thinks this a different species from his Pagoda Grakle, (*Acridotheres Pagodurum*); but I suspect there is some mistake about the matter, the differences between the three birds being such as difference in sex or age would readily account for. Both species (if they are distinct) are found in small

flocks in Bengal, Behar, and Orissa, and are plentiful at Juanpore, near Benares.

97. *Acridotheres* —— ?

Shot by the Curator, and mounted in the Museum.

This is the Saat Bhye, or Seven Brothers of the natives, so called from being always found in a company of about that number. As every body knows, it is one of the most chattering, noisyest birds in India, squeaking and hopping about, now on the ground, then upon a tree, the flock being constantly on the move; when one starts, all the rest follow it, one after another, making generally but a short flight of not more than 40 or 50 yards at a time; and when alighted they hold a sort of consultation, hopping and squeaking about all the time, till after a few minutes they move off to another tree, and so on for the greater part of the day, rarely staying for more than half an hour in the same place: they feed on insects. It is common wherever I have been in the plains of India.

98. *Acridotheres Calvus.*—Bald Mynha.

Chinese Collection.

Gracula Calva. Lin. I. 164. Gm. Lin. I. 396. Turt. Lin. I. 240.

Bald Grakle. Shaw's Zool. VII. 461. Lath. Gen. Hist. III. 146.

Acridotheres Calvus. Steph. Shaw's Zool. XIV. 57.

99. Gen. Cracticus, Vieillot.

C. Chalybeus.—The Green Paradise Bird.

Chines collection.

Paradisea Viridis. Gm. Lin. I. 402. Turt. Lin. I. 244.

Chalybean Paradise Bird. Shaw's Zool. VII. 504.

Blue-green Paradise Bird. Lath. Gen. Hist. III. 195.

Barita Viridis. Tem. Man. II.

Cracticus Chalybeus.

100. Genus Pica, Brisson.

Fam. Corvidæ.

Sp. *Pica Vagubunda.*—Rufous Magpie.

Shot by the Curator, and mounted in the Museum.

"Its namesake in Europe is proverbial for its noise and restlessness. The present subject possesses a full portion of the above

qualities, added to which a familiarity not quite so innocuous. I have known it enter a covered verandah of a house, and nip off half a dozen young Geraniums; visit a cage of small birds, begin by stealing the grain, and end by killing and eating the birds, and repeating these visits daily till destroyed. Its flight has the same jerk, and its motions the same bustling character as the English Magpie. The egg is a plain greyish white."—*C. W. Smith's MS. Notes.*

101. *Pica Sinensis.*—Chinese Mapgie.

Chinese collection.

Coracias Sinensis. Gm. Lin. I. 381. Turt. Lin. I. 229.

Chinese Roller. Lath. Gen. Hist. III. 54.

Specious Jay. Shaw's Gen. Zool. VII. 364.

Pi (?) Sinensis. Steph. Shaw's Zool. XIV. 65.

102. Genus Garrulus, Brisson.

Sp. *Garrulus Gularis.*—Gular Jay.

103. *Garrulus Cristatus.*—Crested Jay.—Blue Jay.

Corvus Cristatus. Lin. Syst. Nat. I. 157. Gm. Lin. I. 369. Turt. Lin. I. 221.

Blue Jay. Lath. Gen. Hist. III. 55. Shaw's Gen. Zool. VII. 359.

Garrulus Cristatus. Steph. Shaw's Zool. XIV. 66.

104. Genus Coracias, Lin.

Sp. *C. Bengalensis.*—Bengal Jay.—Blue Bird.

Shot by the Curator, and mounted in the Museum.

Coracias Bengalensis. Lin. I. 159. Gm. Lin. I. 380. Turt. Lin. I. 320. Stephens' Shaw's Zool. XIV. 71.

Bengal Roller. Lath. Gen. Hist. III. 72.

Indian Roller. Shaw's Gen. Zool. VII. 390.

"Though gifted with so brilliant a plumage, much cannot be said in praise of its shape. Its appearance on the wing is lovely, yet when perched we observe a large head, thick neck, prominent breast, and a pinched body, which is rendered more conspicuous by a long tail. It is a very common bird, is little afraid of man's approach, and is pugnacious, driving away the crow without much effort; it is a very noisy, screaming bird, and in this respect is frequently very troublesome. With the Hindoos it is esteemed sacred; they consider

it propitious if seen upon the day which concludes the Dussorah, or Doorga Pooja festivals, and discharge their matchlocks to put it on the wing. The Birmahs annually send parties to procure the feathers of this bird, and of the painted Kingfisher."—*C. W. Smith's MS. Notes.*

105. Genus Corvus, Auctorum.

Sp. *C. Dauricus.*—White-breasted Crow.

Corvus Dauricus. Gm. Lin. I. 367. Turt. Lin. I. 219. Stephens' Shaw's Zool. XIV. 69.

White-breasted Crow., Lath. Gen. Hist. III. 17. Shaw's Gen. Zool. VII. 349.

"The Indian Crow is more social and familiar than any of its tribe in Britain; like the sparrow it is every where, on the house top, in the verandah, even venturing to take a snatch at the breakfast table, yet always awake to danger, it is off at a moment's warning."—*C. W. Smith's MS. Notes.*

This bird is very common wherever I have been on the plains of India; but Calcutta seems to be its head-quarters, where it is to be seen at all times of the year, upon the houses, in the fields, and on the shipping in the river. It awakes before day-light on the gun being fired in Fort William, and by its incessant cawing, seems determined that every body else shall awake likewise. Latham's drawing is bad; and the description scarcely agrees with our bird. If this be the "common crow of India" of Col. Sykes' catalogue, it is in his opinion the *Corvus Splendens* of *Vieillot:* but with which it also does not agree.

106.

Genus Ptilonorynchus, Kuhl.

Sp. P. Violaceus.

Presented by Captain Pemberton.

107.

Fam. Buceridæ.

Genus Buceros, Auctorum.

Sp. *Platyrynchus.*

Flat-crowned Hornbill.

Chinese collection.

108.

Buceros Panayensis.—Panayan Hornbill.

Chinese collection.

Buceros Panayensis Gm. Lin. I. 360. Turt. Lin. I. 214. Steph. Shaw's Zool. XIV. 82.

Furrowed Horn-bill. Shaw's Gen. Zool. VIII. 33.

Panayan Horn-bill. Lath. Gen. Hist. II. 321.

109. *Buceros Homrai.*

Presented by Dr. McCosh.

Mr. Hodgson discovered this magnificent species in Nepaul. Lieutenant Phayre, 7th Regiment Native Infantry, brought me a specimen from Moulmein; and this in the Society's Museum was brought from Assam, by Dr. McCosh. A species of Horn-bill more magnificent than the above is found near Kerseangurry, on the road to Darjeeling, at an elevation of about 3000 feet; the head and neck furnished with long disintegrated feathers, forming a sort of mane, their colour light chesnut, and that of the belly dark chesnut, back and wings glossy black, tail do. with white tip. Bill without a casque. I forbear to say more on this bird, having sent it to Mr. Hodgson of Nepaul for description—a gentleman whose exertions in this branch of Natural History in the Himalayah Mountains, entitle him to a consideration of the kind.

Fam. Psittacidæ.

Genus Psittacus, Auctorum.

Sp. *Ps. Erythacus.*—Ash-colored Parrot.

Psittacus Erithacus. Lin. I. 144. Gm. Lin. I. 332.

Psittacus Erythacus. Turt. Lin. I. 197. Steph. Shaw's Zool. XIV. 107.

Ash-colored Parrot. Lath. Gen. Hist. I. 208. Shaw's Zool. VII. 486.

111. *Psittacus Sinensis.*—Green and red Chinese Parrot.

Chinese collection.

Psittacus Sinensis. Gm. Lin. I. 337. Turt. Lin. I. 200. Steph. Shaw's Zool. XIV. 107.

Green and red-sided Chinese Parrot. Lath. Gen. Hist. II. 232.

Red-sided Parrot. Shaw's Zool. VIII. 490.

112. *Psittacus Pendulus.* Mihi.—Pendulous Parrot.

Chinese collection.

As I cannot find that this bird has been described by any author, I have ventured to offer a name for it. The following description and remarks are from Mr. Smith's notes:—

"The length of these little birds, the smallest of the tribe in India, is about five inches. The bill is an orange red, the crown of the head, back of the neck and wings a blueish green; the throat, breast, and belly a light yellowish green; a spot of ultramarine colour on the throat; the lower part of the back and the tail coverts deep scarlet; the tail deep green and pointed; and the legs a light orange.

The present drawing was made from a pair of these birds in the possession of a native at Gyah. They inhabit Bengal, however, and do not appear to be found in the Gyah division, nor so far to the Westward. I have seen cages full of them in Calcutta. They have no note that I ever heard, nor do they speak; they are very tame, and when going to roost, resort to the upper part of the cage, where they hang in the manner that I have placed the upper bird."—*C. W. Smith's MS. Notes.*

In Mr. Smith's drawing the "upper bird" referred to, is represented as hanging to a bough by its legs, with the wings folded almost close to the side, the tail a little spread, and the head downwards.

113. Genus Nanodes. Vigors.

Sp. *Nan. Pulchellus.*—Turcosine Parrot.

Chinese collection.

114. *Nanodes Discolor.*—Red-shouldered Parrakeet.

Chinese collection.

Red-shouldered Parrakeet. Shaw's Zool. 466.

115. Genus Platycercus, Vigors.

Sp. *P. Pennantii.*—Pennantian Parrakeet.

Chinese collection.

P. Pennantii. Steph. Shaw's Zool. XIV. 120.

Pennantian Parrakeet. Shaw's Zool. VIII. 410.

116. *Platycercus* ——.

Chinese collection.

117. Genus Pezoporus, Illiger.

Pez. Formosus.—Ground Parrakeet.

Chinese collection.

Ground Parrakeet. Shaw's Zool. VIII. 454.

118. Genus Palæornis, Vigors.

Pal. Alexandri.—Alexandrine Parrakeet.

Alexandrine Parrakeet. Shaw's Zool. VIII. 423.

Paleornis Alexandri. Zool. Journ. II. 49. Steph. Shaw's Zool. VIII. 123.

119. *Pal. Barrabandi.*

Chinese collection.

120. Genus Trichoglosus, Vigors.

Sp. *Tr. Hæmatopus.*—Blue-bellied Parrakeet.

Chinese collection.

Blue-bellied Parrakeet. Shaw's Zool. VIII. 413.

121. *Trichoglosus Concinnus.*

Chinese collection.

122, 123, 124. *Trichoglosus Pusillus.*—Small Parrakeet.

Chinese collection.

Small Parrakeet. Shaw's Zool. VIII. 471.

125. Fam. Picidæ.

Genus Bucco, Lin.

Sp. *B. Cyanops.*—Blue-cheeked Barbet.

Shot by the Curator, and mounted in the Museum.

Blue-cheeked Curucui. Shaw's Zool. VII. 7.

The blue-cheeked Barbet is common in Bengal, less so in Orissa, and I have not seen a specimen at Juanpore. Mr. Smith well observes of it, that "It has a singular habit when perched of bowing the head, accompanying each motion with a single note resembling the word 'hoo.' It has two broods, the one in the month of May, the other in November."—*MS. Notes.*

126, 127, 128. *Bucco Indicus.*—Indian Barbet.

The first specimen presented by M. Bouchez. The others shot by the Curator, and mounted in the Museum.

The Indian Barbet is one of the most common birds of India, often congregating in small flocks. One of them is generally perched on the top of the highest tree and nods his head, and cries "buck, buck, buck," every time with the most indefatigable perseverance for hours together. From this cry the generic name was probably taken. It feeds upon seeds, is a social good tempered little fellow, and flies like a lump of a bird, as it is, in short jerks high in the air, though to no great distance at once.

129. Genus Picus, Lin.

Sp. *Picus Viridis.*—Green Woodpecker.

Green Woodpecker. Lath. Gen. Hist. III. 345. Steph. Shaw's Zool. IX. 183.

130. *Picus Macei.* Cuv.

Common in most parts of India.

131. *Picus* ——.

132. *Picus Erythrocephalus.*

133. *Picus Torquatus.*

Chinese collection.

Lewis's Wood-pecker. Lath. Gen. Hist. III. 376.

Picus Torquatus. Wilson Amer. Orn. I. Steph. Shaw's Zool. XIV. 164.

Is this a young bird of the P. Torquatus?

134. *Picus* ——.

Chinese collection.

136. *Picus Tiga.*—Tiga Woodpecker.

Picus Tiga. Horsf. Trans. Lin. Soc. XIII. 177.

Tiga Wood-pecker. Lath. Gen. Hist. III. 416.

136. Genus Colaptes, Swainson.

Col. (?) Rufus.

Presented by Mr. C. W. Smith, and mounted in the Museum. The specimen was purchased among others in a collection from Java.

137. *Colaptes* ——.

Presented by Mr. C. W. Smith, and mounted in the Museum; also in the Java collection.

I cannot find this species in any work, is it new?

138. Fam. Cuculidæ.

Genus Cuculus, Auctorum.

Sp. *C. Edolius.*—Edolio Cuckoo.

Chinese collection.

I shot a specimen on the banks of the Ganges below Rajmahal; and saw several others. I have never seen it in Bengal or Orissa. It is figured and described in Mr. Smith's notes, but he does not state its locality.

Edolio Cuckoo. Stephens' Shaw's Zool. IX. 114.

Cuculus Edolius. Griff. Cuv. VII. 455.

139. *Cuculus Coromandus.*—Collared Cuckoo.

In the original collection.

Collared Cuckoo. Lath. III. 292.

Cuculus Coromandus. Stephens' Shaw's Zool. XIV. 208. Griffith's Cuv. V. 455.

140. *Cuculus* ——.

Presented by Mr. C. W. Smith, from the Java collection.

141, 142. *Cuculus* ——. Metallic Cuckoo.

Chinese collection.

This appears to be Latham's Metalline Cuckoo, described in the General History, III. 301.

143. Genus Eudynamys.

Sp. *Eu. Orientalis.*—The Coel.

Shot by the Curator, and mounted in the Museum.

The Coel is common in every part of India. It is to be found in every thick tree, and in the hot weather, is a pest of no ordinary nature; uttering incessantly the cry from whence its name is taken, "coel," "coel," or "cokeel, cokeel," with a liquid intonation of the *l*. It continues this cry, loud enough to be heard several hundred yards, from morning to night; and indeed from night to morning almost, for I have heard it at 10 o'clock at night, and at 2 in the morning. Latham describes this cry as cheerful and pleasant, but had he heard it he would have thought differently; it is melancholy and monotonous, and wearisome to the listener beyond measure. During the day other noises go to drown it, but at night, and especially early in

the morning, it is an absolute evil, by awaking one, when just dropped a sleep from the exhaustion of the hot preceding day, and the still more terrible early part of the night.

144. Genus Centropus, Illiger.

Sp. *Ce. Castanopterus.*

Chesnut Coucal. Original collection.

Chesnut Coucal. Lath. Gen. Hist. III. 243.

"This bird is very common throughout India. It is vulgarly called the Crow Pheasant; and has acquired this appellation from a considerable resemblance to the Pheasant in its mode of running, of crouching, and secreting itself in bushes; and from its taking wing in the same bustling way. It feeds upon insects, grubs, and when opportunity occurs upon carrion. This and the two succeeding specimens are usually seen upon the ground, in which they differ from the other numerous members of their tribe, which seldom alight, but make short flights from one tree to another.

Latham gives the appellation of Coucal to this tribe, to distinguish them from the Cuckoos; but referring to their habits, I have called them "Ground Cuckoo," so strongly opposed to the Cuckoos, which never descend from the tree."—*C. W. Smith's MS. Notes.*

145. *Centropus* ——.

Original collection.

Besides these specimens of Centropus, Mr. Smith has drawn a third, and I have seen a fourth differing from all, but having lost my notes, I am unable to describe it. The name proposed by Mr. Smith of "Ground Cuckoo," is a very appropriate one, and reminds us of the analogy between the Cuckoos and Parrots in this respect, the Genus *Pezoporus* of the latter being analogous to the Genus *Centropus* of the former.

Mr. Smith describes his second species thus: "This bird is nineteen inches in length, and twenty-four in breadth. The bill is a reddish grey, pale at the edges, strong, rather hooked, and in length two inches. The eye is of a pearly hue, defended above by strong lashes, and having a grey skin or orbit edging the lower half. The plumage of the head, breast, neck, and body is a hoary brown, inclining to black on the crown of the head and behind the neck, and marked

throughout with darker bars. The wing coverts are a red brick colour; the scapulars, secondaries, and quills, barred with black. The tail is fan-shaped, black, with small grey bars sloping to a point on the shaft. The legs are black, and the long claw on the inner hind toe rather less elongated than in the preceding specimen."—*Centropus Castanopterus.*

"This species is found in the Gorruckpore district, elsewhere I have not observed it. In its manners and habits it is similar to the common Mohoka, but its shape more comely by far."—*C. W. Smith's MS. Notes.*

"If, as I believe, not already named, I should propose the name of *Cen. Fasciatus*, when its trivial character would stand as follows:—

Cen. Fasciatus, Black Coucal, with brick red wings, barred with black.

Mr. Smith's next species is by far a more interesting bird, as it seems to form the connecting link between the ground and tree *Cuckoos*, partaking of the manners and general appearance of the former, and having the short hind toes of the latter. It will probably form a new genus of *Cuculidæ;* but in the meantime till this be determined, perhaps the name of *Centropus Cuculoïdes* may be admitted. Mr. Smith describes it as follows:—

"Measures sixteen inches in length. The bill is a bright vermillion slightly edged with yellow, and has a black spot about the centre of the edge of the upper mandible; there is a singular streak of minute white feathers forming a line from the nostril to the lower part of the eye: the latter is a dark brown, surrounded by white lashes. The plumage upon the crown of the head, the hinder part of the neck, the back, and wings, is a brownish satin colour, with black shafts; that on the throat, breast, and belly a faint orange, similarly marked; that of the tail dark grey, the two central ones wholly so, the next have white tips. The legs are slate coloured; and there is not the long claw remarked in the hinder toe of the preceding birds."

"I met with this species at the Bherah lake, in the Gorruckpore district, where it appeared to be pretty common, but I have not seen it elsewhere. It greatly resembled the Mohoka in its manner of running and flying. The natives, who delight in extraordinary stories, affirm, that it proclaims the morning, eve, and midnight hour by a pecu-

liar note; unfortunately I never happened to hear such a timed note." —*C. W. Smith's MS. Notes.*

Ornithological works being procurable with difficulty in India, I have chosen the most common for the few synonyms I have thought it necessary to give.—J. T. P.

CATALOGUE OF MAMMALIA

In the Museum of the Asiatic Society. By J. T. Pearson, *Surgeon, Bengal Establishment; formerly Curator of the Museum.*

Note.—This very meagre list contains only the few specimens of Mammalia that were in the Museum before I became Curator; that of the additions made during the time I held the office was unfortunately lost in the Ganges; and I have no copy.—J. T. P.

1. Class. Mammalia.

Ord. Bimana.

Genus Homo.

Sp. *Homo Sapiens.*—Man.

A mummied Head.

Presented by Lieut. Archbold, who procured it in the catacombs of Egypt.

2, 3, 4, 5. Ord. Quadrumana.

Genus Simia.

Sp. *Simia Gigantica.*—The gigantic Ape.

The skin of the face and left fore and hinder hands, and part of the skin.

Presented by Captain Cornfoot, who procured this specimen in the Islaud of Sumatra. The animal is described by Dr. Abel in the 13th Volume of the Researches of the Asiatic Society.

6. Genus Semnopithecus.

Sp. *Semnopithecus Melalophos.*—The Simpai.

A stuffed specimen.

The Simpai is described by Sir T. Raffles in the 13th volume of the Linnæan Transactions; and as far as can be made out (from its bad state) the present specimen agrees with his description.

7. Ord. Carnassiers.

Fam. Cheiroptera. Trib. Vespertiliones.

Genus Pteropus.

Sp. *Pteropus Edulis.*

The black Pteropus, or eatable Bat.

A stuffed specimen.

8.

Genus Galeopithecus.

Sp. *Galeopithecus Rufus.*—The Colugo.

A stuffed specimen.

9.

Fam. Insectivora.

Genus Sorex.

Sp. *S. Indicus.*—The Indian Shrew.

A stuffed specimen.

10.

Fam. Carnivora.

Trib. Plantigradæ.

Genus Ictides.

Sp. *Ictides Ater.*

Presented by Colonel Farquhar.

Mr. Wardlow in the second volume of the Journal of the Asiatic Society, has given very satisfactory reasons for identifying this specimen with the *Ictides Ater* of F. Cuvier.

11. Trib. Digitigrada.

Genus Felis.

Sp. *Felis Kutas.*—The Kutas.

A mounted specimen.

Presented by Mr. J. T. Pearson. This animal is described by the donor in the 1st volume of the Journal of the Asiatic Society.

12. Fam. Marsupiata.

Genus Thylacynus.

Sp. *Thylacinus Cynocephalus.*—Part of the skin.

13. Ord. Rodentia.

Genus Rhizomys, Gray.

Sp. *Rhizomys Sumatrensis.*

A mounted specimen.

Described by Sir T. Raffles in the 13th vol. of the Trans. of the Linnæan Society.

14. Genus Hystrix.

Sp. *Histrix Fasciculata.*—Pencillated Porcupine.

A mounted specimen.

15. Ord. Edentata.

Genus Manis.

Sp. *Manis Crassicaudata.*—The short-tailed Manis, or Pangolin.

A mounted specimen.

16. Sp. *Manis Crassicaudata.*—The short-tailed Pangolin.

A mounted specimen.

A good deal smaller than the last.

17. Ord. Edentata.

Sect. Monotrema.

Genus Echidna.

Sp. *Echidna Hystrix.*—The Porcupine Ornithorynchus.

A mounted specimen.

18. Ord. Ruminantia.

Trib. Cervidæ.

Genus Moschus.

Sp. *Moschus Javanicus.*—The Kanchil.

A mounted specimen.

18. Sp. *Mochus Javanicus.*—The Kanchil.

Another mounted specimen.

19. Trib. Capridæ.

Genus Antelope.

Sp. *Antelope Thâr.*—Native of Nepaul.

A mounted specimen.

Described in the Journal of the Asiatic Society, vol. iv. p. 489, by Mr. Hodgson of Nepaul.

20. Sp. *Antelope Thâr.*—The Thar Antelope.

A stuffed Head and Neck.

21. Trib. Bovidæ.

Genus Bos.

Sp. *Bos Taurus.*—The Cow.

A mounted specimen.

A double-headed Calf, presented by ———

22. Sp. *Bos Bubalus.*—The Buffaloe.

A mounted specimen.

A double-headed Calf, presented by Major Gall and Mr. Sewell.

23.

Ord. Cetacea.

Fam. Cete.

Genus Delphinus.

Sp. *Delphinus Gangeticus.* The Gangetic Dolphin.

A mounted specimen, presented by Mons. Duvaucel.

The *Delphinus Gangeticus* seems to have been formed into a new genus: it is called the Plantanistes Gangeticus by Hardwicke and Gray, as has been before mentioned in the Osteological section of the Catalogue.

Note.—Owing to inadvertence, the Catalogue of Mammalia has been misplaced in its order of succession by the printer: it should have preceded the Ornithological Catalogue.

Inscription taken from a Baolee at Bussuntgurh at the foot of the Southern range of Hills running parallel to Mount Aboo. By T. S. Burt, F. R. S. *Captain, Bengal Engineers.*

The indefatigable research, and unabated zeal of Capt. Burt, has put me in possession in this Inscription from Bussuntgurh, of some new and curious information regarding the early dynasties of the Ranas of Mewar. Descended, as my readers need not be reminded, from the *Balhara* monarchs of *Saurashtra* (Surat and Guzerat,) the family destined to fix its seat of power at Chitore and Odeypore, sojourned for two hundred years in the Bhauder Desert after the destruction of that monarchy, until (Useful Tables, p. 109) "*Baph*, or *Bappa* conquered Chitore, and founded a new dynasty in A. D. 727." The list of titular potentates who headed the Gehlote or Jesodia tribe during the above period, from A. D. 524, when the Parthians destroyed the capital Balabhi in Sourashtra, to the date above noted, A. D. 727, is given by Tod from the *A'spur* marble (Rajasthan, vol.— p.—,) and he traces the succession of their princes from the *Aitpur* Inscription, after their conquest of Chitore in the following order :—

	Wilson's List.	*Tod's List.*
A. D. 750.	Guhila, ...	1. Sri Gohadit.
	Bhoja, ...	2. Bhoja (Bhagaditya.)
		3. Mahendra.
		4. Naga (Nagaditya.)
		5. Jyela.
		6. Aprajit.
		7. Mahendra.
	Kalabhoja, ...	8. Kalabhoja.
	Bhartribhata, ...	9. Khoman (invasion of Chitore from Cabul, A. D. 812.)
	Samahagika, ...	Mangal, expelled by chiefs.
	Khuman, ...	10. Bhirtripad, (founded thirteen principalities for his sons in Malwa and Guzerat.)
		11. Singhji, whose Ranee Lukshmi bore
	Allata, ...	12. Sri Allat, whose daughter Haria Devi was grand-mother of
	Naravahana, ...	13. Nirvahana.
		14. Salvahana.
967.	Saktivarma, ...	15. Saktikumar, 967 or 1,068?

I have given these lists at length for facility of reference with respect to the suggested classification of the monarchs before inserting the Inscription itself. It bears date Samvat 1,099, or A. D. 1,042. The character is fairly cut, and in high preservation in the ordinary letter of the period. The reading by Pundit Kamalakanta Vidyalanka is printed as usual in common Nagree to accompany the Translation.

My readers will observe, that in the genealogical lists above given of the ancestors of both Lahin and Vigraha, we find names entirely new to us as reigning monarchs in Mewar. In one or two only do we see coincidence or even resemblance with those of Tod's list, which Chronology will allow us to admit as identical with some names in our Inscription. The names of the countries, *Badari* the kingdom of Raja Sangna, and *Vada*, the residence of Poorna Pala, are new to us, and none of the Pundits whom I took much pains to consult were enabled to give me references sufficing to elucidate the difficulty; under the impression however, that they might by possibility be names of purely local application to tracts long unknown, as the sites of power, or the habitat of a numerous population, I begged Capt. Burt to oblige me by detailing, to the best of his remembrance, any circumstances attending his discovery of the Inscription, which might aid conjecture in coming to a satisfactory conclusion.

"The Bussuntgurh Inscription was taken from a deep tank or baolee of moderate dimensions, almost entirely surrounded with jungle, and lying at the foot of that portion of (what Tod calls, as I understand him,) the Aravulli range of hills, situated nearly *opposite* the northern extremity of the mountain Aboo. The country contained between these two heights is, I think, and as far as Beejagnoh (Beejipoor by Tod, "the city of victory,") called Badari; for I think one of the Sawars, (belonging to the Kawul of Sirohee,) who attended me during my pilgrimage, gave it that name, in contradistinction to that of the country lying on the other, or western side of Aboo, and stretching out to Neebach, or Neemuch, (not our cantonment of course) but a dependency I believe of the Sirohee Raj. In the first mentioned, the country is covered with jungle, and in the latter *comparatively* open, that is, after clearing out a few miles from the base of the mount, which is entirely surrounded by forest trees, as well as almost impenetrable grass, rendering a descent from Aboo a dangerous operation at the end of the rains, (being once there,) on account of the malaria generated by the evolution of mephitic gas from the rife vegetation there, and similar to that of the Terai below Nipal, and the forests between this and Bombay."

Here then we have *Badari* recognised as the modern local appellation of the tract of country near about the site of the Inscription. As to attempt-

ing to trace with accuracy the genealogy now before us in that of the line of princes whom we can already number with certainty as among the rulers of Mewar, I own that at present, without other sources to refer to, the effort does not seem likely to be attended with success. I did not fail to consult my friend, Lieut. Cunningham, (Bengal Engineers,) than whom I know no one more capable of giving a sound opinion upon a case of historical or chronological difficulty. Without going into the detail of a very ingenious calculation, (which I prefer keeping back until the contents of another Inscription be fully ascertained, which I hope may throw light upon that of Bussuntgurh,) I will merely state two of Lieut. Cunningham's positions, as being both exceedingly well founded. "Bhirtripad," he observes, "founded thirteen principalities for his sons, and I am inclined to suppose your new dynasty to be one of the branches of his family." The same idea occurred, I must own to myself, on first studying the genealogy, and evidence of the existence of petty states, "the land of *Badari*," and "the city of *Vada*," which we find recorded in an age immediately succeeding Bhirtripad's in the Bussuntgurh Inscription, A. D. 1,042, proves the correctness of the information we have, and gives a natural idea of the state of the country, after the attack of Chitore, A. D. 812, in the reign of Khoman, when after the expulsion of the temporary sovereign *Mongal*, the next successor found himself compelled to subdivide his authority, weakened by the anarchy and confusion of the twenty years preceding.

Lieut. Cunningham again accounts for the want of agreement between the names on the Bussuntgurh Inscription and those recorded in the "Useful Tables," by pointing out that "the Rajas in James Prinsep's list, (after Sri Allat) are descended on the female side, whereas in the Inscription they would appear to be heirs male." I would not readily hazard a conjecture where further researches for the evidence of Inscriptions is almost certain to be productive of fact established on the surest grounds. One can only hope that those who have the opportunity will not allow it to escape them, when at a slight expense of exertion, the ancient history of one of the most interesting portions of India may be by their efforts, as so often by Capt. Burt's, greatly elucidated.

Literal Translation.

1. I, Matri Sarmá, a poet and the son of Hari, having offered salutations to Váni, (the goddess of wisdom,) who is propitious to the learned, made this eulogy.

2. May Hari, the illuminator of the three regions, who is himself the sun (or the only object of speculation to the astronomers) Sivá to

Saivas (or the followers of Sivá,) to be known by intuition and meditation, remover of sins, illustrator (creator) of all, great, knowing all human virtuous dispositions, and surrounded by the *Vasoos*, *Kinnaras*, and *Sidhas*, and whose divine truth is unveiled to the wise,—protect you!

3. From the wrath of *Vasisthá** was born a son * * * * * * * and from him sprang many powerful Rajas.

4. From *Utpala Raja*, one of the descendants of this line, sprung one named *Aranya Raja*, and from him was born *Adbhúta Krishna Raja*, who was renowned like *Vasudeva*, (Krishna).

5. His son, who was famous, noble, and whose name was *Srínáth Ghosi*, had also a son named *Mohípála*, from him was born *Raja Vandhuka*.

6. Whose fame is still to be sung aloud even in the region of the gods, by the well-dressed and adorned goddesses, as well as by the females of the *Kinnaras*, having lutes in their hands.

7. He by his might easily carried off the *Lakshmi*, (Fortune,) of his enemies, though they assembled a numerous army. His beautiful wife, whose name was *Ghreta Devi*, was of a mild disposition and a noble family.

8. From her and *Vandhuka* was born *Púrnapála*, who was always content, famous, and the supporter of all; who also acquired the name *Valadarpada*, for his having fought battles and possessed kingdoms of (his enemies.)

9. His fame in the assembly of *Indra*,† is always sung by the god-

* *Note by Pundit Kamalakanta on the sloca* 3 *of the above.* "*From the wrath of Vasistha.*"

The following sloka are extracted from the 13th section of the 9th chapter of *Srímat Bhágvat*:—

Níni, the son of *Ikoháku*, having commenced a *jagna*, (a secret ceremony), wished to acknowledge *Vasistha* as his priest for its performance, who instead of complying with his request, said that he has, prior his petition, been bound to perform the ceremony commenced also by Sakra.

And further that he must wait till the same was over.

But *Níni* being sensible of the instability of worldly pursuits, determined to have it (the ceremony) performed by another priest.

Whereupon *Vasistha* on his return (from the kingdom of Sakra) found *Níni* to to have broken his promise, cursed him to loose his life.

From the dead body of *Níni*, which was thus separated from life and (afterwards) churned by the gods, was born a son. * * * *

† The chief of the gods.

desses, who are all beautifully adorned with the golden flowered ornaments and with lutes in hands resplendent with jewels.

10. He (Púrna Pála) placed at the gate of his palace the strong elephants exuding ichor from their temples, of his enemies, whom he has easily slaughtered in several battles. To him, who was the illuminator of the Pála line, and most eminent within the whole Arryaváta, the *Srí Lakshmí* was, as it were, the governing queen.

11. His younger sister named "the queen Láhiní," who was as it were the Lakshmí herself, but without the seat of lotus, was married to *Raja Vigraha* as *Lakshmí* to *Krishna.*

Here follows the lineage of *Begraha :—*

12. There was a celebrated *Kshetriya* named *Kásiswara,* who was most powerful, subduer of his enemies, and superior to all the other Rajas, and who for his heroic disposition gained fame throughout the whole world.

13. From his line descended *Raja Bhabagupta,* who was renowned for his good counsels, illuminator of his line, and a great warrior. He repaired the image of the *Sun,* established in some forest adjacent to *Vada,* where he reigned for a length of time.

14. From the line of *Bhabagupta,* sprung *Raja Sangana,* who gained the kingdom of *Badari,* and was himself respected by all. His son was *Ballabha Raja,* who also had a son named *Chara,* and from *Chara* was born *Bara Raja.*

15. From *Bara Raja* was born *Vigraha Raja,* who was respectable for his noble qualities, and the king of kings; and whose good name which he acquired by the power of valour, noble qualities, and liberality, has far surpassed the regions.

16. He, *Vigraha Raja,* was always attended by people of a good nature, and fond of many wives; he made his two lines, both paternal and maternal, honorable, and was beautiful in person, ruler of the world, very strong, superior to mankind, and like *Mádhaba,* (*Krishna,*) in disposition, though a man.

17. He, *Vigraha,* having gained so merited a wife, *Láhiní* (as above mentioned,) enjoyed her, and she too being married to so desired a lover as *Vigraha,* who was like Indra in the earth, (was likewise happy.)

18. She soon after the sudden demise of her husband, being deprived of all sorts of happiness in the world, at last took her abode into the residence of her brother at *Vada.*

19. This line, from which sprung *Raja Vasistha*, was also denominated " Vasistha line."

20. In Vada, the shrine of *Nagradha* is to be found. There *Vasistha*, who was great, established the images of the *Sun* and Siva, who yield salvation, and caused the temples, palaces, walls, forts, &c. to be erected, and tanks to be dug.

21. There further the Brahmans, who have completely studied Vedas, which are difficult, were in no instance proud.

22. *Vadapoora*, which is inhabited by people who are virtuous and attentive to their faith, and as well as by musicians, heroes, and warriors, &c. and commodiously situated for commerce, was looked at as if the second heaven.

23. Near this is the river *Saraswati*, having a ghaut constructed by the Raja, its water was adorned with the flowers for worship, nay, it is as if the mother to the Brahman females.

24. Here the inhabitants, who are all patriotic, wise, mild, addicted to worship the gods and Brahmanas with the gifts of variety, and renowed for talents, are always devoted to *Bhanu*, (the Sun.)

25. Here the queen *Ldhiní* mourning the death of her beloved consort arrived, accompanied by Brahmanas, and being sensible of the instability of worldly pursuits as well as of life.

26. Repaired the old temple of *Bhánu*, which had been once more repaired by *Vasistha* when fallen down by time.

27. This temple of *Bhánu*, which was strongly built of bricks and stones, when completed exhibited the colour of clouds, and was so beautifully perfected that it resembled Himalaya, the mountain where Siva resides.

28. Its staircase, which is beautiful as ought to be in its kind, and built of stones, is like that of the gods, which are not to be found elsewhere.

29. Further, she for the promotion of virtue, transformed the river *Saraswatí* into a tank, which was useful to the gods as well as to men, and removing sin (by its water.) Its waves were so lofty, as if they were to touch the firmament.

30. She being conscious of the instability of the world, has performed this deed of virtue by the expenses of her own.

31. So long as the *Surabhí** shall continue to graze in the region of cows, and the waves of the seas agitated by the wind, the sun with his one-wheeled car shall endure, so long shall this tank exist, the water of which is pure as the rays of the stars.

32. This eulogy was made by Matri Sarmá, a Brahmana, who was the son of Hari, and the well-wisher of Láhiní for the benefit of all.

33. It was engraved by Sivapála, the son of *Dorhaka*, who had his dwelling in the fort of Raja *Aswapati*, in the Samvat year 1099.

An Abstract by Kamalakanta Pundit.

Literal Translation.

The particulars of the *Janaka* Rajá's birth are already detailed in the preceding slokas, extracted from *Srímat Bhágavata.*

From the line of this *Janaka* sprung many powerful Rajás, from some of these was born Rajá *Ootpala ;* from *Ootpala, Aranya* Rajá; from *Aranya* Rajá, *Adbhúta Krishna* Rajá ; from *Adbhúta Krishna* Raja, *Vasoodeba* Rajá ; from *Vasoodeba, Srinátha Ghosi ;* from *Srinátha, Mohepála ;* and from *Mohepála, Vandhooka ;* from his wife named *Ghrita Devi,* was born Rajá *Púrnapála ;* whose younger sister was *Láhiní,* the restorer. Here also follows the lineage of *Vigraha* Rajá, whom she had been married to, but unfortunately for a short duration, when he, *(Vegraha* Rajá,) departed this life, leaving *Lahíní* a widow, who from that time took up her abode into the residence of *Purnapála,* her brother. The lineage is this. There was a Rajá named *Kásiswara Dwijáte,* and from his line descended a Rajá named *Bhabogúpt,* who had also once repaired this very temple of *Bhanu* (Sun) in the forest of Vadapura, where he had reigned for a while. From him sprung *Sambara,* a Rajá who also ruled the country of *Vadari.* From *Sambara* was born *Ballabha* Rajá, who had a son named *Chara,* and from *Chara* was born *Vara* Rajá, and from *Vara, Vegraha* Rajá, the husband of *Láhiní.* It was she who caused the temple of *Bhanu,* formerly established in the forests of *Vada* to be repaired, as well as a reservoir of water made therein.

* An eternal cow, yielding every thing desired.

नागराक्षरलिखितवसन्तगडदेशीय प्रशस्तिः ॥

प्रणम्य हरिपुचण कविना मातृशर्म्मणा । सुहद्धिततरां वाणीं प्रशस्तिः सुकृता मया ॥ ज्योतिर्ज्योतिविदां भवः शिवधियां दृष्टःपरं चक्षुषा तत्त्वाराधनतः स्मृतः कलुषहा सर्व्वप्रकाशो महान् । तत्त्व ज्ञानमसंवृतं मतिमतां ज्ञाता च सत्कर्म्मणां पायाद्वो वसुसिद्धकिन्नर युतस्त्रैलोक्यदीपो हरिः ॥ वसिष्ठकोपाज्जनितः कुमारः : : :

: : : : : : (भुम्यां) महाबला यचनृपा बभूवुः ॥ अस्यान्व ये ह्युत्पलराजनामा आरण्यराजो ऽपि ततो बभूव । तस्मादभूदङ्गत कृष्णराजो विख्यातकीर्त्तिः किलवासुदेवः ॥ तस्यात्मजो भूवलय प्रतिष्ठः श्रीनाथधीषी वृतवान् वराण्यः पुचोपि तस्मान्महिपाल नामा । तस्मादभूदन्धुकण्व भूपः । अस्यापिकीर्त्ति. सुरराजलोके प्रगीयते वै सुरकिन्नरीभिः । वीणानिविष्टं करजांगुलीभिः । विमुक्त कंठोभिरलंकृताभिः । येनाहृता शौर्य्यबलेन लक्ष्मीर्व्विख्याप्य भारं परसैन्यमध्ये । अस्यापि भार्य्या घृतदेविनाम्नी रूपेण शीलेन कुलेनयुक्ता । तस्मादमुष्यांभुविपूर्णपालः पूर्णो नृणांपालय शोभिपूर्णः । महारणेनापि विजित्य राङ्कं नामा ऽपिभूतं बलदर्पदेति ॥ कनककर्णि कभूषिततारया करपदेमणिभूषितवीणया । विबुधराजकुले सुर कन्यया सदसि यस्य यशः खलु गीयते ॥ हत्वा येन रिपून् युधा च वज्र शः प्रख्याप्य भारं स्वकं विक्रान्तामदशालिनो वरगजानङ्गाः स्वके मंदि रे । पूर्णः पालकुलप्रदीप इव यो ऽप्यार्य्यावते धार्म्मिके । अचश्रीः पर मार्थवंशतिलकेराज्ञीस्थिरा शासति । अस्यानुजा लाहिनिनामराज्ञी लक्ष्मीर्यथा तामरसैर्व्विहीना । जटापि या विग्रहभूभुजेन सत्या यथा पूर्व्वमधोचजेन ॥ अस्यान्वये ऽपि ॥ आसीद्दि जातिर्व्विदितो धर ण्यां ख्यातप्रतापो रिपुचक्रमर्द्दी । योदुःखशौर्य्यार्ज्जितभूयशस्यः का शीश्वरःसर्व्वनृपप्रधानः ॥ तदन्वयेख्यातमतिर्नृपो ऽभूत् कुलप्रदीपोभव गुप्तनामा । उद्धृत्य वेशं वनवासिभानोर्वंदेषुराज्यं हृतवान् स वीरः ।

अस्यान्वये संगनराजनामा वन्द्योनरैर्योवदरींसमाप्तः।तस्मादभूद्दल्ल
भराजभूपश्चरोपितस्माद्दरराजभूपः । वभूव तस्माद्गुणिताप्रधानो
नृपोत्तमोविग्रहराजनामा । प्रदानशौर्य्यादिगुणैरुदारैर्यशोयथौ
यस्यविजित्य लोकान्। द्विजिक्करिपुवाह्नो ललनकान्तरापूजितः
कुलद्वयक्षतोन्नतिर्व्विधृतचारुलक्ष्मीवपुः । स्वपौरुषधृतावनिर्व्वलनि
विष्टवक्षामहान् वभूव नृवरोत्तमःस नररूपधृङ्माधवः॥ भार्य्यांसचा
वाप्य गुणैः समेतां वितोषितां वै वुभुजे च भोगं। सापि प्रियं प्राप्य
पतिम्बरेण यद्वन्महीन्द्रेण समंचरेमे॥ अस्मिन्मृते भर्त्तरि दैवयोगाद्
भ्रातुर्गृहं सा प्रियताविमुक्ता। आवेशिता वै नगरे वदेऽस्मिन्दैवात्
प्रहीनैवसुखक्रमेण ॥ वसिष्टराजोपि अचासीदतोयंवसिष्टराजाव्ये
यो ऽपि (जातमत्रपावारुणिनापि) अत्र न्यग्रोधस्याश्रमः॥ ॥ स्थाने
र्कभर्गो खमतो वसिष्ठोमुक्तिप्रदोस्थापितवान् वरिष्ठः । तद्वद्दाख
नगरेवने ऽस्मिन् वज्रप्रसादान् क्षतवान् वसिष्ठः। प्राकारवप्रोपवनै
स्तडागैः प्रासाद (वेश्मैः) सुधनैः सदुर्गैः॥ अतिमन्द्रोदमक्षोभ्यं पार
गावक्रमाकुलं। वेदार्णवं द्विजाःसम्यग् यत्र तीर्णाप्यगर्व्विताः॥ लोकै
र्धर्म्मपरैः स्वकर्म्मनिरतैः सङ्किःसदावासितं। आवृत्त्याजनसम्मतैः
प्रतिदिनंनित्यं वणिग्भिर्व्वृतं। पौराणैर्गणिकाजनैर्व्यसनिकैः शूरै
र्जनैः संकुलं स्वर्गस्थानमिवापरं वदपुरंक्षौणीतलेसंस्थितं। मरुद्ग
ता यत्र सरित्सरस्वती सोपानपंक्त्याचनृपेण निर्वृता॥ सुपुण्य पुष्पोदक
फेणवाहिनी द्विजायमाना जननीववेष्टिता ॥ येसर्व्वंपालयन्ते नगर
हितरतानीतिमन्तः प्रशान्ता देवान्विप्रान्यजन्ते वनभवनमहीवस्व
रत्नादिदानैः । ख्यातायेचैवनित्यं त्रिभुवनवलयेसद्गुणैरेवनीताः।
तेस्मिन्पौराः समस्ताःसकलजनहिताभानवे भक्तिमन्तः। साचागता
लाहिनिनामराज्ञीभर्त्तुर्व्वियोगेन निपीडितांगी। अस्मिन्पुरेविप्र
जनैः समेत्य दृष्ट्वा तुतोषान्तरनात्मवुद्ध्या भानोर्गृहं दैवबशाद्विभक्तं
वसिष्टपौरैः सुक्षतं यदासीत् विनाग्निसर्व्वं सहजीवितेन क्षात्वागृहं

कारितमाशुभानोः लोकप्रयोगा सुज्ञता दुरापा सुश्लिष्टसन्धीघटि
तोत्पलेव। सोपान पंक्तिः शुशुभे सुवङ्गा निश्रेणिभूतेव दिवौकसा
नां ॥ देवैः समस्तैर्मुनिभिश्च जुष्टा पापापहा व्याप्यवियत् स्थिता या
जोवैर्वृता लाहिनिपुण्यहेतोः सारस्वती शेषजनस्य वापी। निष्पा
द्य सुज्ञतौ ज्ञात्वा अर्थंदत्वा पुनःपुनः : : वैनाशिकमिदंचान्यज्
ज्ञात्वालोकस्यचर्चितं ॥ यावद्गोलोकवृत्तीः प्रवहतिसुरभिर्यावद
र्कोन्तरीक्षे। यावद्दीचयः ससुद्रे पवनविधुनिताः संतताः प्रोच्छलन्ति।
यावद्दोम्नि प्रदीप्तं प्रवहति मिहिरस्यंदनस्यैकचक्रं वाप्येषातावद
क्षणमुडुकरसदृशी कारकस्यातिकांता। ज्ञतेयंहरिपुत्रेण मातृशर्म्म
द्विजन्मना सुविलोकहितार्थाय लाहिन्याश्चहितैषिणा। आसीच्चना
माश्वपतेः सुदुर्गेदुर्गाज्ञती दोडकसूचकारः। अस्यापिसूनुःशिवपाल
नामा यनोत्ज्ञतेयंसुशुभाप्रशस्तिः॥ नवनवतिविहासोद्विक्रमादित्य
कालेजगति दशशतानामयतोयचपूर्णा। प्रभवतिनभमासे स्थानकेचि
चभानोः स १०९९॥

अस्यसंक्षपः॥

वसिष्ठकोपाद् यथा जनकोजातस्तद्वृत्तांतः श्रीभागवत नवमस्कंद
श्लोकेभ्यश्चवगंतव्यः ॥ जनकवंशे महावलाराजानो वभूवुः। तदेक
तमवंशे उत्पलनामा राजा तत्पुत्रः आरण्यराजः तत्पुत्रः अद्भुत
क्षणराजः। तत्पुत्रो वासुदेवराजः तत्पुत्रः श्रीनाथघोषी तत्पुत्रो
महीपालः तत्पुत्रो वंधुकस्तस्य भार्य्या घृतदेवी वंधुकात् घृतदेव्यां
पुर्णपालनामा राजा पूर्णपालस्य अनुजाभगिनी लाहिनी विग्रह
नाम्ना राज्ञा विवाहिता। विग्रहराजे मृते लाहिनी विधवा तस्य
पुर्णपालस्य भ्रातुर्गृहे स्थितवती। विग्रहराजस्य पूर्व्वपुरुषाणां कथा
यथा ॥ काशीश्वरो द्विजातिराजआसीत् तद्वंशे भवगुप्तो येन वद

पुरेवनवासिभानोर्जीर्णोद्धारः कृतः । वदस्य राज्यं च स्वीकृतं तदन्व
ये संवरनामा राजा स वदरीराज्यमाप तस्य पुत्रोवल्लभराज स्तस्य
पुत्रः श्वरः तत्पुत्रोवरस्तत्पुत्रोविग्रहराज स्तत्पत्नी लाहिनी
वदेष वनवासिभानोर्मंदिरांणां जीर्णोद्धारं एकांवापीं च कृतवती ॥

Proceedings of the Asiatic Society.

(Wednesday Evening, 11th August, 1841.)

The Honorable Sir E. Ryan, President in the Chair.

Fletcher Hays, Esq. 62d N. I. Junior Assistant Governor General's Agent, Saugor, was proposed a Member by Dr. J. McClelland, seconded by Dr. J. Grant.

Henry Walker, Esq. Surgeon to the Governor General's Body-guard, was also proposed a Member by Dr. J. McClelland, seconded by the Secretary.

Library and Museum.

Books received for the Library of the Asiatic Society, for the Meeting on the 11th August, 1841.

Jamieson's Edinhurgh New Philosophical Journal, No. 59, January 1841, 1 vol.

London, Edinhurgh, and Dublin Philosophical Magazine and Journal of Science, 3d Series, Nos. 115 and 116, Vol. 18th, February and March 1841, 2 vols.

Calcutta Christian Observer, New Series, Vol. 2d, No. 20, August 1841, 1 vol.

Map of the Provinces of Bengal and Behar, by J. B. Tassin, Calcutta, 1841, 1 vol.

Annuaire des cinq departments de L'Ancienne Normandie, 1839, 5e. Année, Caen 1839, 1 vol.

Acts de L'Académic Royale des Sciences, Belles Lettres et Arts de Bordeaux, 1re. Année 1re. á 4re. Trimestre, Paris, 1839, 4 vols.

Extrait des Séances de la Société Royale D'Agriculture et de Commerce de Caen, par M. Lair, 19 Janvier 1838, et 18 Janvier 1839, (2 copies each,) 4 vols.

Reponse de M. P. A. Lair, a une lettre de M. Mercer, Caen, le 30 April 1840, 1 vol.

Société Royale D'Agriculture et de Commerce de Caen. Rapport sur le 2d volume des Institutions Hippiques, Janvier á Juin 1840, 6 vols.

Ditto ditto Programme de deux Concours, 1840, 1 vol.

Extrait des Rapports faits par M. Levardois, 1840, (2 copies,) 2 vols.

De L'Extinction de le Mendicité, par M. Lecerf, Caen, 1840, (2 copies,) 2 vols.

Hammer Geschichte der Goldenen Horde in Kiptschak, des ist der Mongolen in Russian Pesth, 1840, 1 vol.

Moorcroft's Travels in the Himalayan Provinces, &c. in 2 vols. (10 copies,) 20 vols.

Humboldt über die Kawi—Sparche auf der Insel Java, vols. 2d and 3d, 2 vols.

Transactions of the Royal Irish Academy, vol. 19th, part 1st, Duhlin, 1841, 1 vol.

Wight's Icones Plantarum India Orientalis, or Figures of Indian Plants, vol. 2d, parts 1st and 2d, 2 vols.

Reports and Abstracts of the Proceedings for investigating Coal and Mineral resources of India, May 1841, Calcutta, 3 copies, 3 vols.

Madras Journal of Literature and Science, No. 29, October and December 1840, 1 vol.

Yarrell's History of British Birds, part 24, Loudon.
Oriental Christian Spectator, vol. 2d. No. 6, June 1841, 2d Series, Bombay.
Annuals and Magazine of Natural History, No. 42, April 1841, Loudon, pamph.
Calcutta Monthly Journal, for June 1841, 3d series, No. 79, Calcutta, 1 vol.
Hammer's Gemäldesaal, Funfter band Leipzig, 1838, 1 vol.
First Report of the Elphinstone Native Education Institution 1840, Bombay 1840, pamph.
Jahrbücher der Literatur, 1839, parts 85 to 88, 4 vols.
Journal des Savants, December 1840, Paris, pamph.
Société de Geographie Recueil de Voyage et de Memoires, tome 6, 1 vol.
Hádiakoon Najoon (Persian,) 1 vol.
? Chintamoney, (Sanscrit,) pamph.

Read the following Report submitted by the Officiating Curator:—

H. Torrens, Esq.
Secretary Asiatic Society.

Sir,—For the month of July I have the honor to report as follows:—

Geological, Paleontological, and Mineralogical.—We are, I am glad to say, approaching the completion of the Geological series of our Catalogues, and some of the Mineralogical and Paleontological ones are also ready for the press. We are sadly impeded by the difficulties of deciphering labels, ascertaining collections, and by the printers. The Index to the whole of the Geological, Mineralogical and Paleontological papers in the Transactions, Journal, and Gleanings of Science is printed, and a copy is on the table. Our Secretary informs me it is his intention to print it in the Journal. I have also at his request been occupied this month with a paper on a fossil elephantine jaw from Jubbulpore, sent down by Dr. Spilsbury, which in my limited knowledge of the subject, I am inclined to suppose may belong to a new species or variety? It is at least a piece of justice to Dr. Spilsbury, who has done so much for the Museum, and for the Geology and Paleontology of Central India, that we should record in the fullest manner every thing relative to his contributions; and Mr. Torrens has in this view been good enough to allow me to go to the expence of a plate to explain my views.

Osteological.—The Skeleton of the Neel-Ghye is completed.

Ornithological and Mammalogical.—Nothing new to report.

Museum of Economic Geology.—We have at length obtained here five, out of seven, cases from the Native contractor; and with the exception of a few trifling arrangements, I may say, that this part of the Museum is arranged. The Catalogue will also be completed in a few days.

Travelling Taxidermists.—At the end of the month of June we dispatched a Mr. Gomes, who had been employed by Dr. Helfer, as taxidermist on account of the Society, to Lieut. Tickell, at Chyebassa, with a complete supply of every thing for his work, and a book of instructions. At Midnapore however he appears, according to Dr. Pagan's account, to have taken fright at the stories of tigers and jungles, &c. if he went alone; and he returned to Calcutta, with the excuse, that he could not procure carriage, &c. We have however dispatched him again with two good men for his companions, and he will no doubt arrive safe. This return and delay has made his dispatch expensive, but a part of the expence is experience bought for future use.

Memorandum.—The expence including two months' pay in advance, is in round numbers as follows:—

	Rs.	*As.*
Book and tools, &c.,	10	0
Two Month's advance and travelling expences,	62	0
Total,	72	0
Return and re-dispatching,	48	0
Co.'s Rs.	120	0

Additions to the Museum have been as follows:—

Osteological.—Skeleton of the Neel-Ghye.

Mineralogical, Geological, and Botanical.—Coal, sandstone, limestone, iron-ore, garnets, hemp, dyeing drugs, &c. from the Chinnoor Sircar, collected by Dr. WALKER, presented by Government.

Museum Economic Geology.—Soils from Assam Tea Company.

Yours obedient servant,

MUSEUM, 31*st July*, 1841. H. PIDDINGTON.

At the recommendation of a Sub-Committee the following order as respects the Numismatic Collections of the Society was recorded for future observance; viz. "That no coins be removed from the apartments of the Society without special permission for a special purpose, on a written order given on the responsibility of the Secretary."

A sample of a Table Cabinet (invented by the Secretary) for containing the Coins was submitted to the meeting, and one like it ordered to be prepared.

Read titles of BARON DE HAMMER'S works prepared by DR. ROER, which the Secretary intimated he would publish in the Journal for the information of the curious, and should inquiry be made for any particular subject, that he would publish a translation of the same with the assistance of DR. ROER, who had kindly offered his services.

Read a letter from Mr. Secretary BUSHBY, of the 23rd June, 1841, forwarding an Extract from a Dispatch of the Honorable the Court of Directors of 28th April, 1841, expressing their wish to receive a selection of specimens of Fossil Geology of India, for their Museum at the India House.

Ordered,—That the Government be informed in reply that the Society would bear the request in mind.

Read a letter from Mr. Secretary BUSHBY of the 21st July 1841, with enclosures, requesting the opinion of the Asiatic Society as to the Inscription to be placed on Bheem Sing's Lath at Allahabad, adding at the same time, that "the Right Honorable the Governor General in Council would be unwilling to add any Inscription to the Lath itself."

Ordered,—That a communication be made in reply, that the Society concur in opinion with His Lordship in Council, that no Inscription should be on the Lath.

Read a letter of the 13th May 1841, from Moonshee RUTTUN SING BAHADOOR, of Lucknow, accompanied with a work compiled by him on Geography and Meteorology, which he offered for the kind acceptance of the Society, "as a humble token of the high admiration and respect in which the Society is universally held."

Ordered,—That the civility be reciprocated by the presentation to Moonshee RUTTUN SING, with a bound copy of the Transactions of the Society.

Read the following papers, the greater part of which were received by the Secretary as Editor of the Journal.

A Note on the Fossil Jaw of an Elephant sent from Jubbulpore by Dr. Spilsbury, by the Officiating Curator. This was illustrated before the meeting by Crania of Fossil and recent Elephants, and by copies of the drawing made by the Officiating Curator to accompany his note.

Letters of 6th July 1841, from Dr. H. Falconer of Seharunpore, and H. Piddington, Esq. Officiating Curator, on the subject of the late grand Cataclysm on the Indus, described as one of the most remarkable natural phœnomena hitherto recorded as having occurred on the continent of India. The Secretary stated, "that having communicated with the Private Secretary to the Right Honourable the Governor General, he had the satisfaction of stating, that Lord Auckland had personally addressed Mr. Clerk, (Political Agent on the N. W. Frontier,) on the subject at length, requesting that inquiries may be made, and suggesting modes of conducting it.

N. B.—The Secretary has since learned that before the receipt of Lord Auckland's letter, Dr. Jamieson had been deputed by Mr. Clerk, for the purpose of investigating the causes of the Cataclysm.

A letter from Lieut. Postans, of 5th July 1841, with a Translation of the History of Sindh, (*Chuch Namuh*). This interesting work has already appeared in an abridged form in the Journal. The Secretary begged to state, that he would be happy to place this valuable paper at the disposal of the Committee of Papers, for publication in the Transactions of the Society. Referred to the Committee of Papers.

A letter from Capt. Shortrede, of 24th July 1841, forwarding a new Table of Proportional Logarithms, composed by himself.

A Note on the Cerous Elaphus, by B. H. Hodgson, Esq.

A letter of 17th July 1841, from James Middleton, Esq. forwarding Copy of the Sanscrit Treatise, shewing the use of the silver Astrolabe from Kotah, now in the possession of the Society, which Mr. M. had been unable to meet with when he wrote his remarks (published in the Journal) on this curious instrument.

An account of Arracan, by Lieut. Phayre.

A letter of 30th July 1841, from Capt. J. S. Burt, in reply to one from the Secretary regarding the Inscription at Bussuntgurh near Mount Aboo, as also a letter from Lieut. A. Cunningham of 18th July 1841, connected with the above subject. The names of princes reigning in Odeypore, recorded in this Inscription are new, and will it is believed be proved satisfactorily to supply the hiatus after *Bhritiprad*, and *Allata* in Tod's and Prinsep's (Useful Tables) Genealogical Lists.

Specimen of a short History of the Emperors of Hindostan to the reign of Shah Allum the Blind, by Mr. Thomas Conlan. It was suggested that this paper should

be laid before the Committee of Public Instruction, in case it might be found expedient to communicate with Mr. CONLAN.

Read letter from Dr. ROER, Librarian, reporting progress in the classification and arrangement of Books in the manner proposed by him.

Ordered,—To be referred to the Committee of Papers for consideration.

Read a letter from Mr. Secretary MADDOCK of the 2d August 1841, forwarding for deposit in the Society's Museum, and for such notice in the Journal as they may seem to deserve, a collection of Specimens of Minerals collected by Lieut. BIGGE, Assistant Agent to the Governor General, North East Frontier in the Cachar Hills, together with a report on a portion of them by Capt. TREMENHEERE.

Read a report by Mr. JAMES HYLAND, on the Coal Deposit of Cap Island in Arracan, with specimens of Rocks of the same and other places.

Read letter from Messrs. ALLEN AND Co. of London, of 31st May 1841, advising the dispatch of a parcel of Books, presented to the Society by Dr. FREYTAG, Professor at the University of Bonn on the Rhine.

Ordered,—That the thanks of the Society be accorded to the Professor, and that a selection of the Works of the Society be presented to him in return.

The Officiating Curator submitted for the inspection of the Meeting the Geological Catalogue, and Index to the same prepared by him, which would appear in the Journal. The Secretary was requested to take that opportunity to print 300 extra copies for general use.

For all these contributions and presentations thanks were accorded.